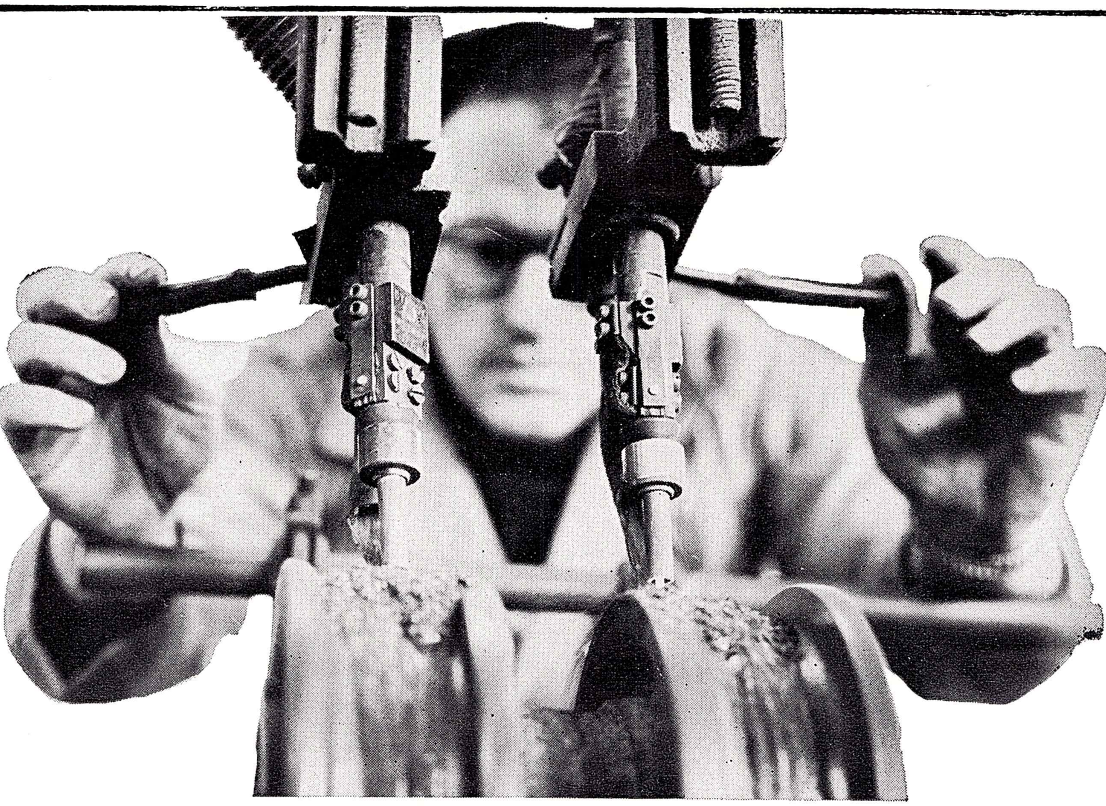
NEW ZEALAND Coal

Brean 1974

Vol.18: No.4: SPRING, 1974

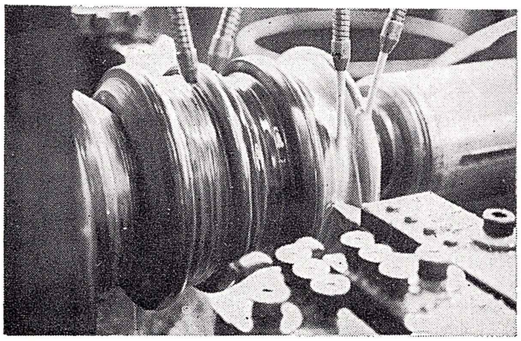


PRECISION!!

TRACK AND ROLLER REBUILDING AT A **FRACTION** OF REPLACEMENT COST, **ON A 7 DAY RETURN**

That's the service earth-moving contractors are getting from our precision plant designed to handle the job of rebuilding tracks, rollers, idlers, driving sprockets – the lot. All parts are rebuilt to original specifications. Automatic plant gives a precision job and keeps costs down.

Ring or write for cost information and prompt service.



- Complete crawler undercarriage service.
- Automatic press guarantees no broaching of track side links.
- Re-building with finest nickel-alloy steel Stoody material giving wear as good or better than a factory built roller.
- Lathe accuracy guaranteed.
- Automatic sprocket re-rimming method gives more strength and reliability.
- Plant designed for quick service to all contractors.
- Exchange service on rollers and shells saves downtime.
- Rock guards made to order. Crane wheels and sheaves rebuilt.

W. STEVENSON & SONS LIMITED.

Workshop and Engineering Division
Walmsley Road, Otahuhu. Phone OH 66-179. Private Bag, Otahuhu.

$1

NEW ZEALAND
COAL

OFFICIAL JOURNAL OF THE N.Z. COAL MINING
DISTRICTS' WELFARE & RESEARCH COUNCIL

Registered at the C.P.O., Auckland, for transmission through the post as a magazine.

PUBLISHING & ADVERTISING
C.P.O. BOX 2990, AUCKLAND

EDITORIAL:
P.O. BOX 10247, WELLINGTON

PUBLISHED QUARTERLY

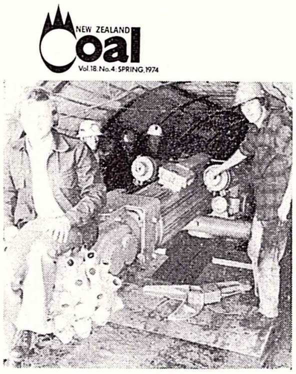
Printed by Cox & Dawes Ltd, 1-5 Millais Street, Ponsonby, Auckland, 2.

VOL. 18, No. 4 :: :: :: SPRING, 1974

Items appearing in Coal magazine may be freely reproduced in other publications providing that due acknowledgment is given

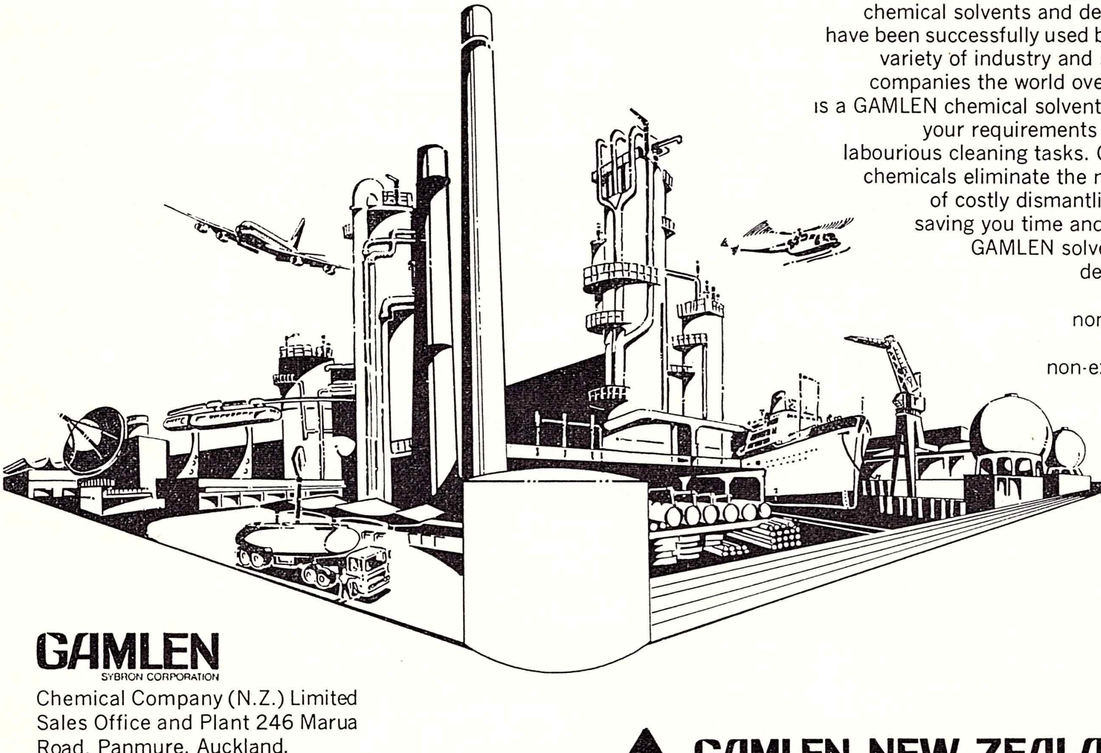
ON OTHER PAGES

Large coal reserves proved ... 2
Coal to a coal mine ... 3
Coal's pattern for the future ... 8
Retired film star raises steam ... 13
Mines Manager promotions ... 14
Auckland's coal-burner stays on economical coal ... 16
"We run at half the cost" ... 18
A new look for coal mining ... 21
Half a century of coal ... 26
Coal can complement solar power ... 28
Winton winter defied ... 31
Careers in coal mining ... 36
Post Office services grow ... 39
C.R.A. activities ... 42
Steam on the main line ... 45
New courses for coal mine certificates ... 48
District News ... 50
C.R.A. cares for your stock ... 52



OUR COVER PICTURE

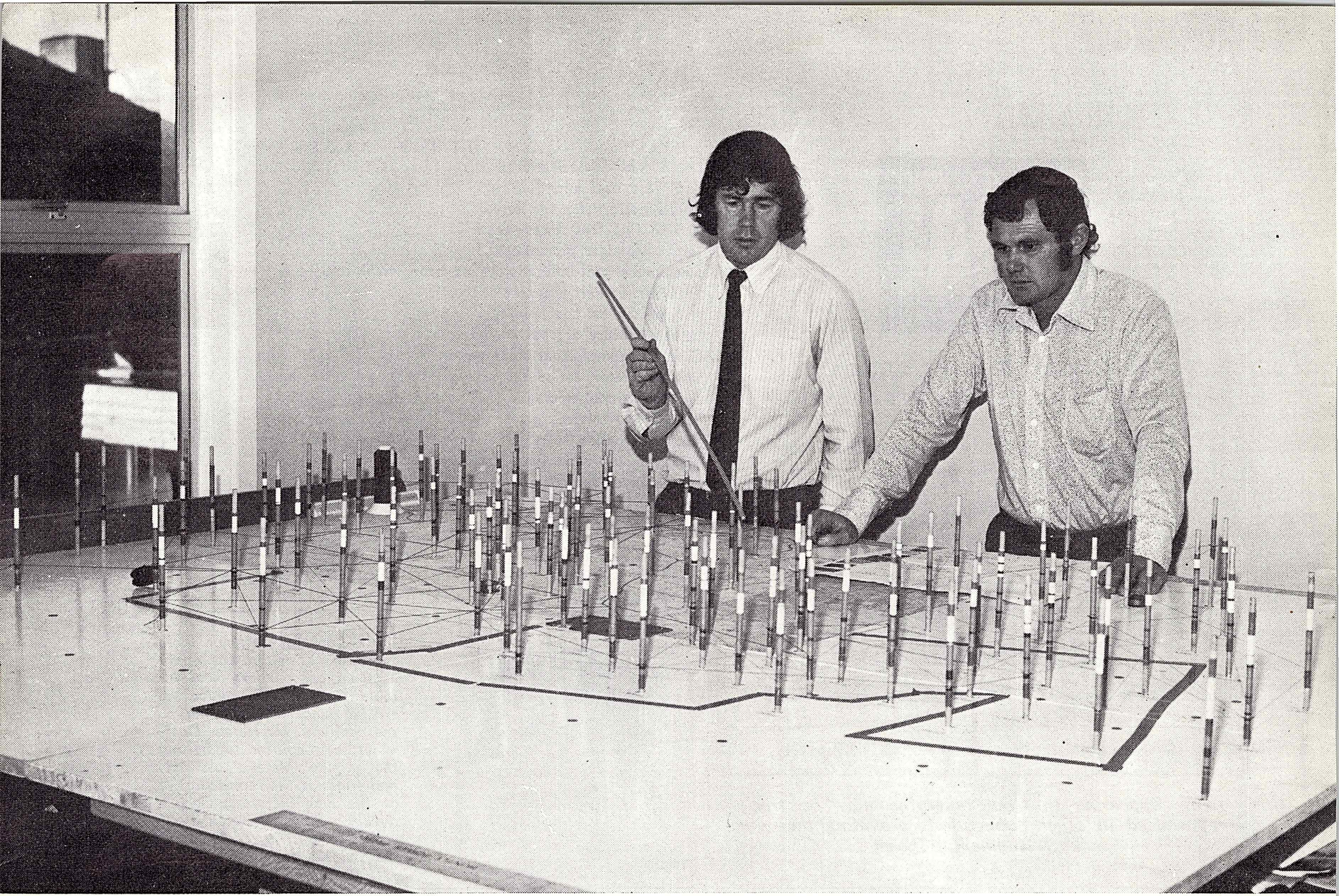
A new look for coal mining in Southland as the Alpine Miner at Ohai goes underground for the first time to introduce the era of mechanical mining to the coalfield. Mr Herbet Obermeier, an engineer supervising the Alpine Miner's assembly and trials as the representative of the manufacturers, Oesterreichisch-Alpine Montangesellschaft of Austria, accompanies the miner as it begins its underground journey.



For over half a century, GAMLEN chemical solvents and detergents have been successfully used by a wide variety of industry and shipping companies the world over. There is a GAMLEN chemical solvent to meet your requirements and end labourious cleaning tasks. GAMLEN chemicals eliminate the necessity of costly dismantling, thus saving you time and money. GAMLEN solvents and detergents are non-caustic and non-explosive.

GAMLEN
SYBRON CORPORATION
Chemical Company (N.Z.) Limited
Sales Office and Plant 246 Marua
Road, Panmure, Auckland.
Agents in: AUCKLAND, WELLINGTON, CHRISTCHURCH, DUNEDIN.

GAMLEN NEW ZEALAND
SYBRON CORPORATION
G 2/71



A three-dimensional model of the No. 1 field, on a scale of 1:2500 shows the scope of the 3000 by 2000 metre field. Wooden pegs on the model, coloured to show strata and the coal seam, represent boreholes which were sunk to prove the field. The bores were sunk to depths between 150 and 300 metres. The No. 1 field lies to the west of the Waikato River and is the first area which the Mines Department plans to work.

Mr K. Brazil (left), the Mines Department engineer at Huntly heading the exploratory drilling programme, discusses the coal with Mr M. Bassick, secretary of United Mineworkers.

LARGE COAL RESERVES PROVED

Huntly prepares to expand coal production for electricity generation

One of the most extensive mineral drilling projects ever undertaken in New Zealand has proved large reserves of coal in the Waikato: 50 million tonnes, valued at 500 million dollars at least.

A new underground mine west of the Waikato River at Huntly will cost $8.5 million and supply up to 600,000 tonnes a year. New opencast workings at Rotowaro will be developed at a cost of $5.5 million to supply 450,000 tonnes annually. Both these mines will supply the power station.

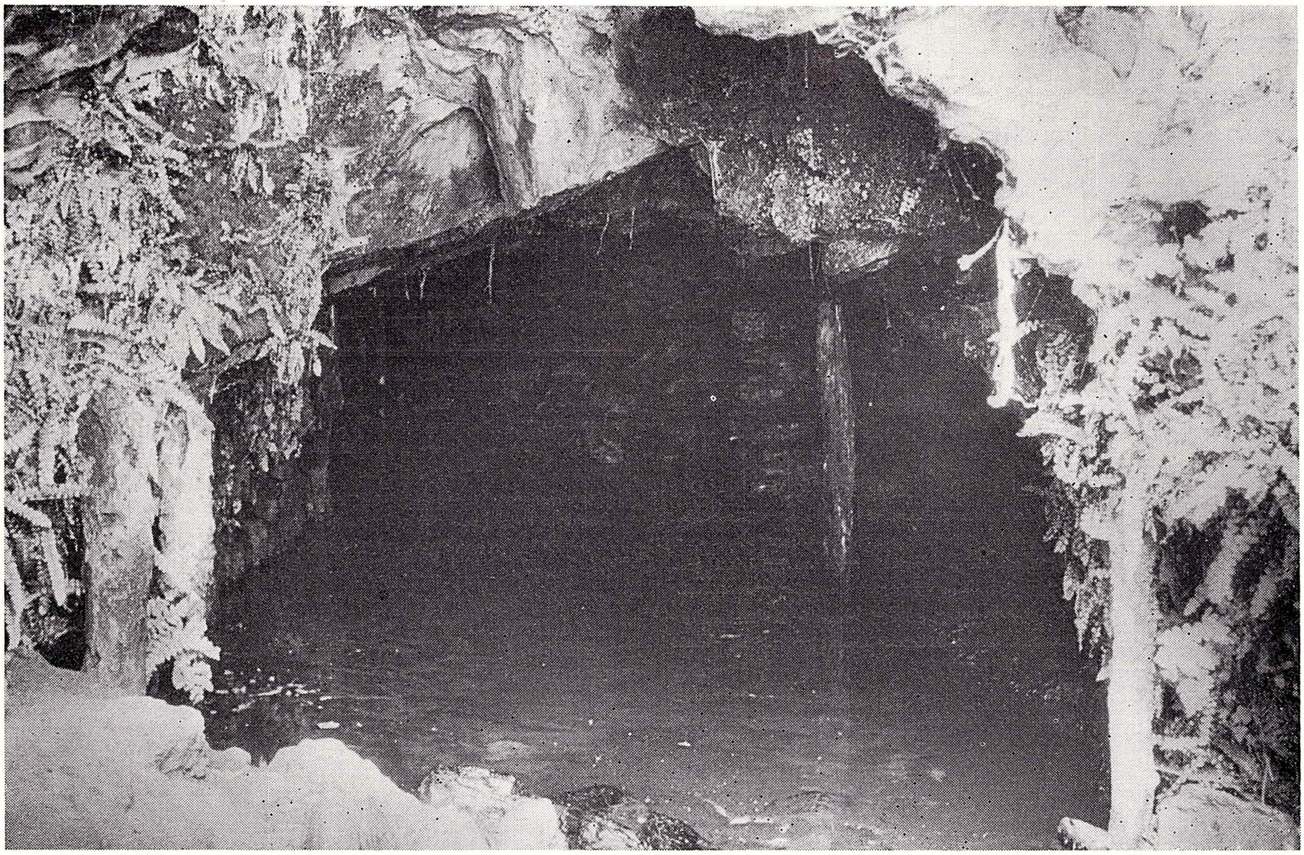
Present customers will be served by a new underground mine east of the Waikato, which will produce 400,000 tonnes yearly.

Northwards

As the test rigs move northwards the drillers have set their sights on the Rangiriri-Ohinewai coalfield, which present thinking suggests could be basically an extension of the Huntly field. Indications are that the field swings eastward under the Waikato River, then north again under Lake Waikere. The lake and hot springs are potential problems in exploiting the 50 million tonnes of indicated reserves, but similar mining problems have been successfully overcome overseas.

A continuation of the same coal field crops up at Maramarua, 32 kilometres north of Rangiriri. This is where opencast workings draw coal for the present power station at Meremere, but there are other promising areas outside the Meremere opencast zone. Additional reserves already proved, total nearly 14 million tonnes.

(continued on page 7)



The mouth of the coal mine at Preservation Inlet. The floor is covered by about a foot of water, and the props are still standing a century after the miners first put them up.

Photo: Dr A. C. Begg

COAL TO A COAL MINE

Fiordland's Preservation Inlet has coalmining history to supplement present coal use

Fiordland is one of the loneliest areas in New Zealand.

Occasionally visited by trampers, shooters and tourists, there is hardly any permanent population.

Nevertheless, the area is rich in history — Maori and European.

The first seal killed in New Zealand by a European was killed in Fiordland.

New Zealand's first European house and first ship were built there.

The first recorded drowning in New Zealand of a European was in Fiordland, the region that at one time had the largest European population in pre-colony times.

The first European shipwreck was also recorded there.

Most southern of the fiords, Preservation Inlet has seen Maori settlement; early European explorers, and an invasion of sealers which nearly made the seal extinct. Whalers from Britain and the U.S.A. hunted the whale in Preservation Inlet and its waters, and by the turn of the century goldminers had settled a township.

To the coal industry, Preservation Inlet is of interest because coal was once mined there. "Preservation Island" of the sealers and whalers, at the inlet entrance has been "Coal Island" on maps since 1851.

Today, the coal miners have gone the way of the sealers, whalers and goldminers. Coal is used at Puysegur lighthouse by the three keepers and their families — but it is coal from Ohai on the other side of the mountain ranges.

Legends and relics of the Maoris who lived at Preservation Inlet exist. The moa hunters of the South Island were attacked by the Polynesians of the North Island, who had developed superiority in war because their technology created a dependable food supply when they learnt the techniques of storing kumara. So it was that the last retreat of the Katimamoe was Preservation Inlet, and it was here that their enemies the Kaitahu eventually defeated them. Survivors of the last battle are thought to be the Maori family Captain Cook met at Dusky Bay, some 20 miles to the north, when he anchored HMS Resolution there in 1773.

Seals

The sealing invasion began in 1792: and the sealers of that era had no inhibitions about conservation. Ruthless slaughter killed mothers and pups indiscriminately so that the seal population declined rapidly and became

(continued on page 4)

COAL TO A COAL MINE

(Continued from page 3)

uneconomic to exploit. The seals today are gradually increasing, but it has still to reach the numbers which created easy wealth from furs for early sealers.

There are still traces of the sealing gangs who stayed ashore at Preservation Inlet while their ships cruised in other sealing grounds, but the whalers have left more behind them, such as a forsaken trypot and remnants of the blacksmith's and cooper's trades.

However, the ruthless exploitation that killed off the seals wholesale applied to the whale. Although they took longer, the whalers succeeded in nearly exterminating the whales around the New Zealand coast almost as successfully as if extinction of the species had been their purpose.

Which left Preservation Inlet the next to capitalise on its resources: the coal industry.

Coal

"There is a small area of coal on Coal Island and also on the mainland in the Preservation Inlet area of southern Fiordland," writes Dr R. W. Willett in his paper on coal, from the "Economic Geology of New Zealand" for the eighth Commonwealth Mining and Metallurgical Congress.

"Hutton and Ulrich (1875) stated that the seam at Otago Retreat had been opened up by a small drive from which 45 tons were extracted."

(Scientific presentation of facts does not usually have room for the human hardships which may underline man's endeavour.)

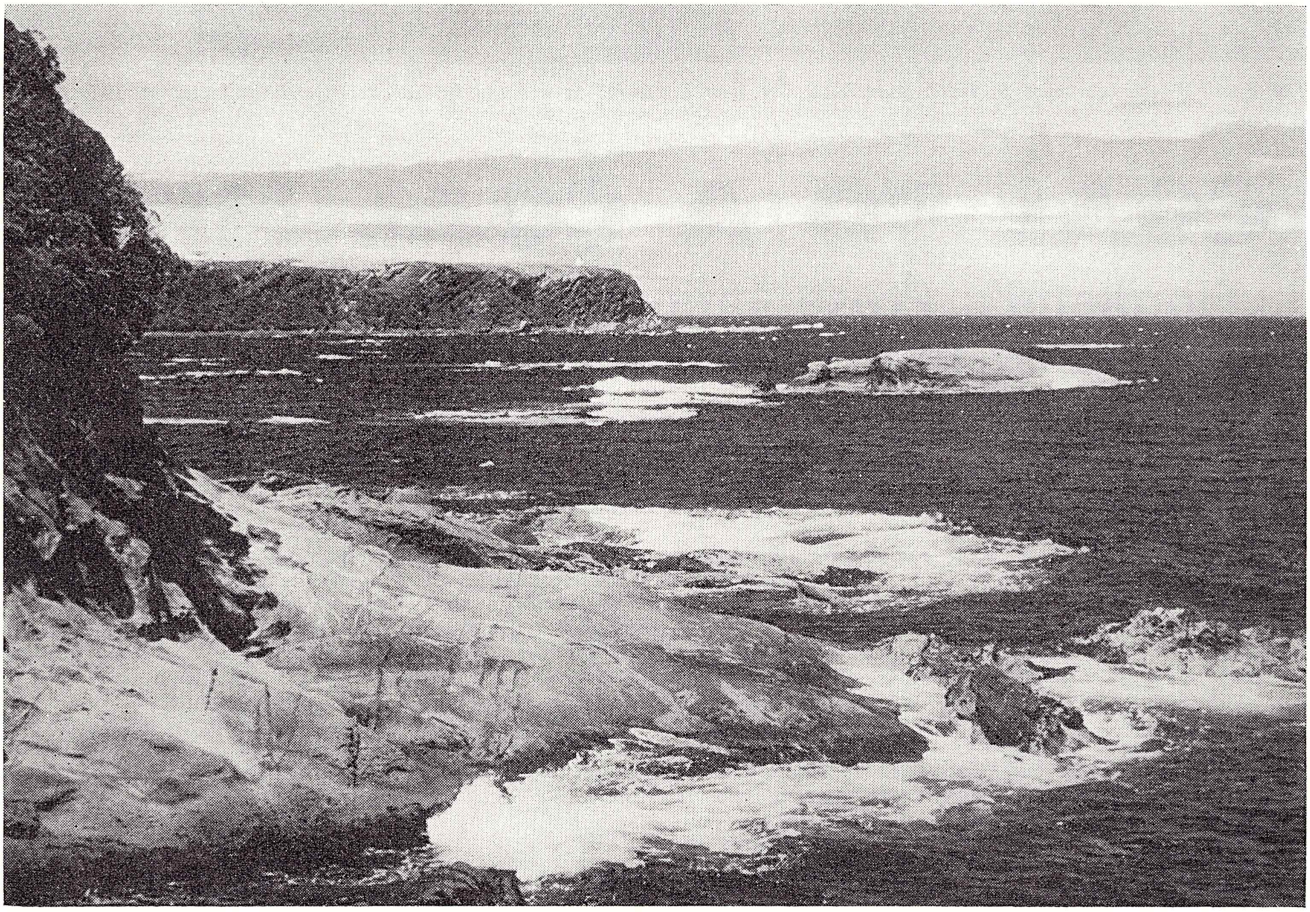
"Preservation Inlet", by Drs A. C. and N. C. Begg (Whitcombe and Tombs 1973) is a highly readable and well-documented history of Preservation Inlet. In this book, which is well illustrated with colour and half-tone plates and maps, the authors describe their visits to various parts of the Inlet, telling the history of each site as they see it today. A comprehensive history of coal exploration and exploitation at Preservation Inlet is given a chapter to itself, and can be recommended for a detailed history of coal in the area.

"Early Fiordland", by John Hall-Jones (A. H. and W. H. Reed 1968) covers the history of the Fiordland region, and can also be recommended for its attention to detail and the fascination of the history.

"The seam dips westerly at 25 degrees but driving was soon abandoned — 300 tons were produced during 1880. Analyses show the coal to have a high sulphur content (over five per cent) with a medium ash and a high moisture content. The marine beds immediately overlying the coal-measures have recently been assigned to the Bortonian stage of the Arnold Series (mid-Eocene)."

While one of the early sailing ship masters provided coal for the blacksmiths building him a schooner in Southland in 1847, assumed to have come from Preservation Inlet, it was the geologist aboard the survey ship H.M.S. Acheron who first described the coal there.

Acheron had been detailed to survey the New Zealand coasts in 1848. Commanded by Captain Stokes of the Royal Navy, who was to carry out the survey in exemplary fashion, the ship was at Preservation Inlet in 1851.



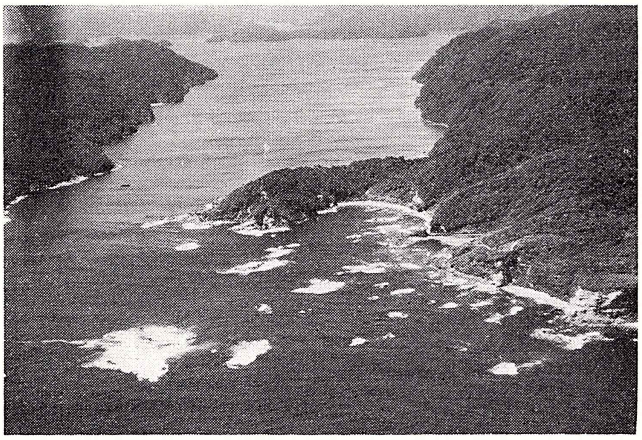
The magnificent seascape view from the entrance of the mine. The lighthouse at Puysegur Point can be seen from here.

Photo: Dr A. C. Begg

Place names

Many of the place names in Fiordland owe their origin to Captain Stokes, and the report of coal on the island at the entrance to Preservation Inlet led to the island's renaming. Otago's Retreat, between Coal Island and the southern shore of Preservation Inlet derived its name from the Otago, supply ship to Acheron, and parted from her during a storm to find refuge in the shelter of the channel.

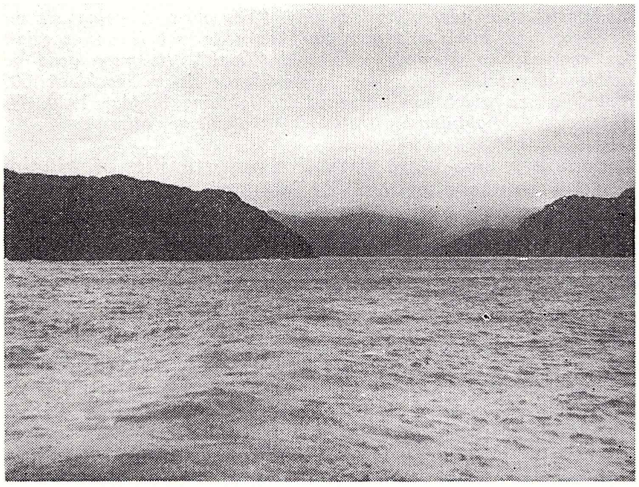
Dr James Hector — well known in New Zealand's coal history, and later knighted — inspected the coal deposits in 1863, and perceived where the seam was exposed in the cliffs by the beach. He also found coal on the northern mainland at the head of the inlet, but did not think the field to be extensive.



Otago's Retreat, with Coal Island on the left and the southern mainland on the right. The coal mine is on the southern side of the promontory, and the landing stage for the lighthouse is on the side of Otago's Retreat out of sight.

Photo: Dr A. C. Begg

Because coal was then imported from Australia, it was to the advantage of any province in New Zealand to find coal within its boundaries as colonial industry began to develop. Consequently Otago offered a bonus for discovering a coalfield and two enterprising businessmen explored the area for seven months and mined the coal to a depth of 20 feet in 1867. The coal they brought back to Southland stimulated interest and others were soon on the field.

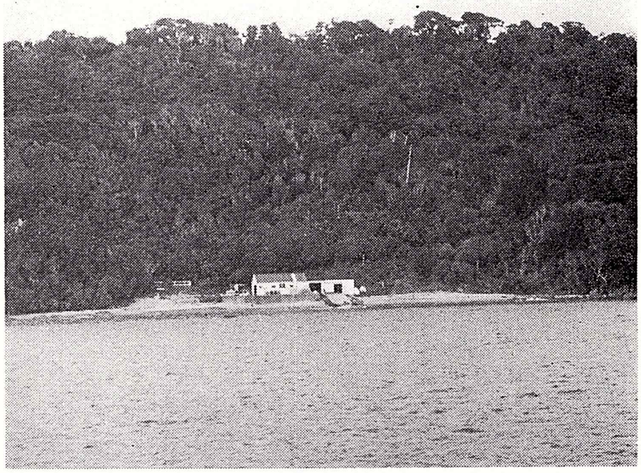


As the ancient Maori, the explorers, sealers, whalers, coal miners and goldminers first saw the southern entrance to Preservation Inlet from the sea. Coal Island on the left.

Competition

In the competition to find a good seam, two were discovered on the mainland to the south of the inlet. One was on the south of the headland of Otago's Retreat and the other about halfway between it and Puysegur Point.

A company was formed and a mining licence obtained. Men and a manager were appointed and sailed for Preservation Inlet. But no coal was ready to be shipped when a ship visited the inlet in December 1867 and for five months nothing was heard of the miners. It was not until May the following year that news came from Nelson, where some of the men had been landed from a ship sent to investigate. The party had been found subsisting on fish and birds after their supplies were lost, and three weeks later the rest of the party was rescued by a passing ship.



The landing stage for the lighthouse. Here heavy stores, including coal, are landed every three months. Freight is loaded into a surfboat for transport to the beach, and carried ashore through the surf by the lighthouse keepers.

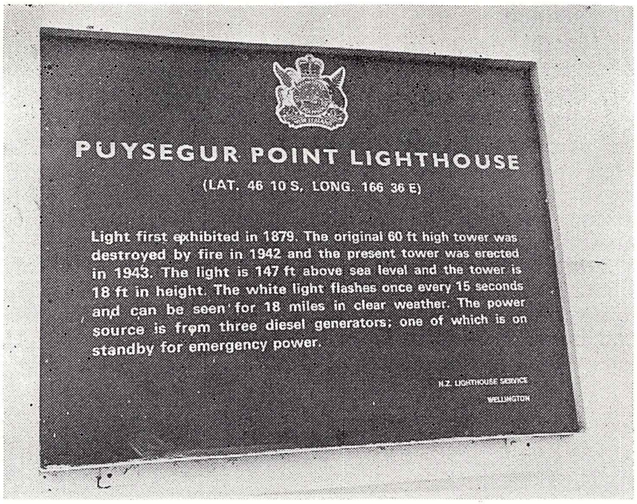
By 1872 the Preservation Inlet Coal Mining Company was ready to try again, and six men were landed to reactivate the mine. But while a rough jetty was built, a coal shute erected and a tramway formed, and some coal was mined, the second attempt also failed.

Hardship

Rough weather delayed a supply ship. Desperate, the miners decided to walk out to the settlements, over rough

The reef by the landing stage for the lighthouse. The poles mark the passage blasted through the reef for landing craft. Five graves on the shore testify to the dangers of crossing the reef.

Photo: Dr A. C. Begg



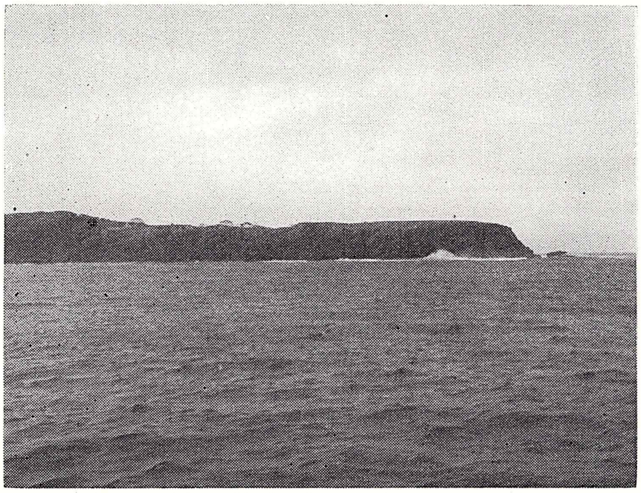
PUYSEGUR POINT LIGHTHOUSE

(LAT. 46 10 S. LONG. 166 36 E)

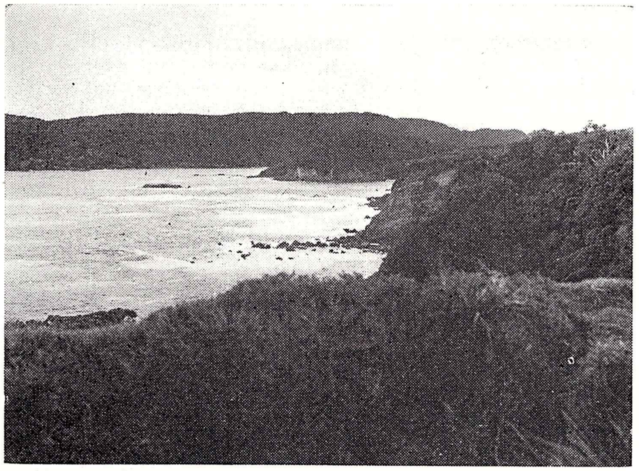
Light first exhibited in 1879. The original 60 ft high tower was destroyed by fire in 1942 and the present tower was erected in 1943. The light is 147 ft above sea level and the tower is 18 ft in height. The white light flashes once every 15 seconds and can be seen for 18 miles in clear weather. The power source is from three diesel generators; one of which is on standby for emergency power.

N.Z. LIGHTHOUSE SERVICE
WELLINGTON

Plaque on the lighthouse gives brief history and technical details. Three keepers and their families live at Puysegur, and 24-hour shifts ensure that the light is always shining at night.



Puysegur is one of New Zealand's most important weather reporting stations. Most cold weather comes from the west, and as New Zealand's most westerly point it is well placed to give first warnings of cold weather approaching. As the only inhabited place in the area, the lighthouse can report on weather conditions for the service to ships and boats. It is important in helping provide weather reports from as wide an area as possible. Despite the remoteness of Puysegur, the staff like the life. "We entertain more here than we do in town," one keeper's wife told "Coal." Daytime is busy enough with household chores and supervising children who study through the Correspondence School. The women hold sewing evenings while the men contrive other entertainments. Occasional trampers and other visitors add variety. An amphibian provides a fortnightly service for mail and light stores, and can provide emergency transport in cases of illness or accident.



Looking north to Preservation Inlet entrance from the road to the lighthouse. Distance between the lighthouse and landing stage is about 3.2 kilometres, and transport for stores and people is provided by a trailer hauled by a tractor. Army engineers recently carried out an exercise where they repaired sections of the road that had suffered erosion.

Loading coal at Bluff for Puysegur. Delivery is in bags, because it has to be transhipped to a surfboat and manhandled ashore across the beach. While diesel generators at Puysegur Point lighthouse provide power for lighting and other light power loads, coal ranges are used in the three homes for cooking to save overloading electric generating capacity. "You have it going all day for heat and water and you don't have to put it on especially for cooking," a keeper's wife told "Coal." 'Its very good for rubbish disposal." The range in her house is a Shacklock 501, replacing one which was damaged by lightning in May 1970. The lightning blast also blew the chimney off.

country which had never been crossed before. Short of food, they left on November 2, 1872, and after struggling across precipices, deep gullies, snow-covered hilltops, swift rivers, reached Orepuki after nearly a fortnight. Birds and mussels helped eke out their food.

Even today the journey is a tough one for experienced bushmen. That the six coal miners survived the hardships, badly equipped as they were, is a tribute to their fortitude and courage.

Dr Hector inspected their work soon after. The mine shaft was timbered for the first 50 feet, but the roof had collapsed at 80 feet. His report did not favour further development, and discoveries of coal at Ohai and Kaitangata provided more attractive opportunities of winning fuel for southern homes and industry.

Drs A. C. and N. C. Begg, in "Port Preservation", have described the state of the coal mine in 1969. A foot of water was covering the floor, but the props were still standing, and the route of the tramway was still discernible.

Gold

The gold rush of Preservation Inlet followed increasing returns by prospectors in the area, and by 1890 about 70 prospectors were active on Coal Island.

Further prospecting around the Inlet led to further discoveries and more goldminers, and eventually a township, Cromarty, to work alluvial deposits. Flooding of the mine caused it to be abandoned, but the story of gold and Preservation Inlet was still not closed.

(concluded on page 7)

COAL TO A COAL MINE

(Continued from page 6)

The Morning Star Mine at Te Oneroa saw a population drift from Cromarty and by 1897 the new mine was producing vigorously.

By 1904 reverses had brought the mine to an end. Te Oneroa faded away, deserted when a visitor described it in 1907.

Tourism

For a while ships regularly visited Fiordland with excursionists but the depression of the thirties put an end to those.

Captain Ian Williams, master of the G.M.V. Wairua which delivers stores to Puysegur lighthouse has spent 28 years at Bluff, and sometimes pilots the occasional overseas ships that visit the fiords with overseas tourists who come to see some of New Zealand's finest scenic beauty.

Fishing boats sometimes shelter in Preservation Inlet, and an amphibian regularly lands as part of the lighthouse supply service.

Otherwise, the three lighthouse keepers at Puysegur and their families are about the only residents.

Conservation

Kiwis and kakapo were once plentiful in Preservation Inlet. Man-introduced predators, such as rats, stoats, dogs and man himself have reduced these flightless birds to rarities in the region — the kakapo is thought to be extinct, deer having contributed by destroying the bushwalks where the kakapo fed.

If man has almost departed from permanent habitation in the area, he has taken much of the bird life with him. He came close to destroying the seals, and the whales cannot survive further killing.

Perhaps future generations, desperate for coal and its chemical treasure as other reserves are depleted, may remember Preservation's coal and return to exploit it once more — but under conditions which do not repeat the hardships and isolation of the miners who tried and did not succeed over a century ago?

For the opportunity to visit Preservation Inlet, "Coal" expresses thanks and appreciation to the Marine Division of the Ministry of Transport; and to the master of the G.M.V. Wairua, Captain Ian Williams, and his crew. For material help in preparing this article, we thank Mr P. W. Daniels, Principal Keeper at Puysegur and his staff and Dr A. C. Begg.

"Coal" also expresses appreciation to the sandflies of Fiordland, who desisted from their notorious attentions to visitors for the duration of our call.

TAX CONCESSIONS FOR COAL CONVERSIONS

The May, 1974 Public Information Bulletin (No. 78) of the Office of the Commissioner of Inland Revenue carries the following statement:

"COSTS OF CHANGEOVER FROM OIL TO ALTERNATIVE FUELS

"Any manufacturer or person in business who is converting his power plant from oil to an alternative fuel, may claim the cost in the year incurred.

"Remember, however, that the cost of any improvement made to the plant at the time of conversion should be capitalised."

The Coal Research Association inquired for more detail from the Inland Revenue Department and has circulated the following:

It seems that any fuel-burning appliance qualifies under "power plant".

It was explained to the Department that, in some cases, conversion from oil to coal would involve only the combustion equipment, but in other cases, e.g., packaged oil-fired boilers, conversion could necessitate a new boiler. It was also stressed that a factory converting to coal would inevitably be involved in capital expenditure in coal storage and handling.

The Department emphasised the second sentence of their statement and said that conversion costs which could be claimed were any that did not involve new assets or improvement to assets. If existing plant were rendered useless by the conversion, the loss of that would be regarded as deductible.

They recommended that anyone interested in availing themselves of this concession should have a report prepared on their conversion plans, and discuss it with their local tax office who could advise the extent to which they could benefit from the scheme.

☆ ☆ ☆

LARGE COAL RESERVES PROVED

(Continued from page 2)

of retrievable coal, and further likely but unproved reserves are assessed at 60 million tonnes.

Homes

Homes for Mines Department staff are included in the development of the coalfield, and the department is expecting to pay $250,000 in each of the next two years for this purpose.

The drilling programme was begun to find additional sources of coal for the planned Huntly power station, and already has shown that the Huntly west coalfield is at least 50 per cent bigger than originally believed — and as the drills march further across the Waikato no end is in sight as yet.

The proved reserves in the Huntly field now amount to 150 million tonnes of subbituminous coal, valued at more than $1300 million.

Even if the extraction rate is only 50 per cent the field has enough recoverable coal to run the Huntly power station until the year 2030. A figure of 50 per cent recovery is, however, considered by mining engineers to be modest.

Expansion

A $27 million expansion programme has ben put in hand, the Minister of Mines, the Hon. F. M. Colman has announced, referring to the development of the Huntly field.

Large, mechanised underground and opencast mines will be begun this year, he says, and the mines when developed will produce more than 2,000,000 tonnes of coal a year.

Coal output at Huntly will be trebled, and the total output of State coal mines in New Zealand will double as the expansion programme takes effect.

Working drawings will be prepared for a central workshop, administration building and laboratory costing $1.5 million.

Consultants have been invited to submit proposals for the project, and the design, construction and location of a conveyor for transporting opencast coal will be deferred until the Mines Department has been advised by them.

No earthworks or other economically irreversible construction work may begin on the mine sites, or for a conveyor, until the Minister of the Environment concurs. This will be decided after an environmental impact report for the east side mine has been audited by the Commission for the Environment.

In the meantime a second underground mine west of the Waikato River has been deferred pending more experience of large-scale underground mining operations.

The permanent mining force to produce the extra coal will increase the present staff from 500 to 700 men.

COAL'S PATTERN FOR THE FUTURE

White Paper surveys New Zealand's coal industry

In 107 pages plus 20 of appendices, the White Paper "The Coal Industry of New Zealand" sets out a pattern for developing and expanding New Zealand's coal industry in today's world.

Improved financial help for domestic and industrial coal installations; more vigorous research and marketing; modern mechanised coal extraction offering permanent employment opportunities for technically trained miners: these are among the 34 recommendations made by the Commissioner of Energy Resources, Mr R. J. Hogg, in the paper tabled in Parliament on September 27.

Graduated rises in the price of coal are recommended, so customers meet the full cost of production where underground mining — especially in the South Island — is subsidised by the taxpayer.

While the White Paper must be studied in full to understand the reasons for its comments and recommendations, we set out some extracts of interest. Any comment or conclusions, however, should be made only after studying the extract against the background of the full details as printed in the White Paper.

Cost of Coal Winning

"Cost of production as an element of delivered cost is one of the determinants of an integrated coal production policy designed to supply market needs at a competitive cost and in accordance with good mining practice.

This cost also needs to be established to determine what markets can be economically supplied. Not only is there a need therefore to have as complete a knowledge as possible of 'measured' reserves but also to have reliable information on the likely cost of production from those reserves, on a basis that will enable it to be updated as necessary. This is simply a costing exercise which should be carried out under the programme for proving reserves already recommended. Desirably the programme would be so constructed that for the most part the work will be concentrated on those areas most likely to add 'measured' reserves which can be produced as an economic fuel for electricity generation or other available markets."

Quality

"Quality control is practised in the coal industry but the emphasis it is given is not consistent throughout the industry."

"Clean coal is required for modern coal-burning appliances and the importance of eliminating the causes of consumers' complaints is competing directly with oil, gas, and even electricity. The quality of these alternative fuels is similarly kept at a consistently high level and unless coal preparation is similarly kept at a high standard, any advantage which coal may have by lower cost could be lost."

Marketing

"In the past, too much attention has been focused on the school and household markets where there is a high profit margin but the future is not encouraging, and not enough on large heavy industry where coal has a very real future in New Zealand, as it does overseas."

Pricing

"The conclusion reached is that there is adequate justification in present circumstances to apply increases to coal prices so that in general consumers meet the true cost of supply. But there could be advantages in applying increases progressively, over say a five-year period, firstly to minimise any minor adverse effects on coal consumption; secondly in the interest of overall price stabilisation; and thirdly to encourage the coal industry to actually reduce costs by increased productivity and greater mechanisation."

Air Pollution

"There is no reasonable basis for attributing all atmospheric pollution to coal as has frequently been the case. Insufficient recognition has been given to the effects of burning higher sulphur fuel oils in industry, and the polluting effects of carbon monoxide emissions from motor vehicles.

"The inefficient burning of coal is, however, responsible for a certain percentage of atmospheric pollution and contributes not only to possible health hazards, but also to the deterioration of our physical environment.

". . . . The measures contained in the Clean Air Act will be major influence in imposing environmental standards on coal, as it will on all areas of fuel usage. It could well be that future uses of coal will be concentrated in larger operations where anti-pollution precautions are more economically feasible."

Households

"The capital cost of domestic electrical appliances is substantially lower than the cost of the equivalent coal-burning appliance. However, for whole-of-house heating, the capital cost of the coal-burning appliances which are now becoming available is similar to that of comparable oil-fired appliances.

"The coal space heater, however, can provide heat much more economically and provide a means for coal to compete on better terms. The 89 per cent increase in the price of home heating oil earlier in 1974 will have a significant influence on the demand for alternative fuels, including coal, but more specifically on demand from the home builder who is required to take a decision affecting future heating costs, than on demand from the home owner with an existing appliance."

Electricity Generation

"It is undoubtedly the market at Meremere that has enabled the Waikato coalfield to be operated profitably over recent years, as it has provided the market for otherwise unsaleable fine coal. Last year Meremere consumed one-third of all the coal sold in New Zealand.

"Not yet fully explored are the prospects for the subsequent power station use of Southland lignites. This is necessarily a long-term development because:

(a) The proven reserves of lignite equal only 5,000,000 tons although the indicated reserves are 4,300,000 tons, and the inferred reserves 111,600,000 tons. A further 1,100,000,000 tons is classed as 'speculative coal'. Therefore, while there is the prospect of enormous reserves, no commitment could be made without a substantial amount of further drilling.

(b) The characteristics of Southland lignites, especially its high moisture content (often above 30 per cent), pose some serious technological problems for their use as a fuel in thermal power stations. However, similar coals are being used extensively in Victoria, Australia, for this purpose which would indicate that these problems are by no means insuperable.

"In fact, electricity generation will, for many years, provide the main market, and a greatly expanding market, for coal which fully justifies an extensive exploration and proving programme, coupled with any research necessary to ensure that all economically recoverable coal can be utilised for that purpose."

Industrial

"It should be pointed out that in those North Island towns where natural gas is, or will be, available it is probably more attractive financially (depending on the gas tariff) to install new gas-fired equipment, than either new oil- or coal-fired plant, perhaps by as much as 2 to 6 cents per therm. It is natural gas that will be the real predator of the 1970s and 1980s for coal markets in the North Island."

Loans

"One of the reasons often cited by industry for purchasing oil-fired boilers has been that the extra capital cost in using would be too much of a financial burden. The availability of low interest loans with a reasonably long repayment period would seem to overcome this problem."

Operating Costs

"One industrial user estimated that by using a small automatic oil-fired boiler which did not need a certified attendant, rather than a larger coal-fired boiler, the annual savings in labour costs would be $6000 to $8000. This hp criterion is disadvantageous to coal and should be reviewed to establish whether it is entirely relevant."

Other Consumers

"Twenty-six cases, therefore, concerned proposals for the use of under 100 tons of coal per annum. Those that were resolved in favour of coal amounted to 3 per cent of the coal usage and contributed virtually nothing to the coal industry (less than half the output of one miner). The costs of administering the policy at this level of coal usage are out of all proportion to possible costs."

Private Co-operative Mines

"Logically, private mines should be attracting a greater following, particularly as labour has been encouraged in recent years to leave the State mines. However, this has not been the case and one reason could be that State coal prices are the basis for market prices and the price has not truly reflected increases in cost of production."

Underground Mechanisation

"The State coal mines are to be commended for the introduction in recent years of a greater degree of mechanisation in underground mines in the South Island and particularly for their foresight in placing an order in 1970 for a continuous miner and all the other equipment necessary for a mechanical unit which could be used as a pilot plant."

Future Mining

Waikato-Taranaki: "The future for this region is very encouraging with the construction of the Huntly power station and the anticipated expansion of New Zealand Steel Ltd."

Buller: "The present work force of 245 may be larger than will be required for this overall mining operation. However, increased regional development in the West Coast plus the need for a power station construction staff should enable any run-down of manpower at the mines to be planned so that it can be absorbed locally or transferred to provide skilled workers for the Huntly mines, without significant social problems."

The Human Factor

"In general, workers have been slow to move out of the industry and this could be due in part to the lack of mobility of the mining labour force with its preference to remain in specific mining districts. An added factor could be the relatively high average weekly earnings of miners; in 1973 the average earnings of all workers, including overtime and bonus payments, was $73.35 a week. This is to be compared with the average earnings per week in the State underground mines in the same year of $90.35, or 23 per cent more than the average industrial wage. This differential is probably a fair reflection, both of the industry's past importance and the less-than-favourable working conditions in underground mines compared with many other occupations.

"Now that mine workers are no longer encouraged to seek other avenues of employment, it is probable that the work force engaged in coal mining generally will tend to expand to the extent necessary to meet the new production demands discussed elsewhere in this paper.

"In the future, as mine workers acquire more complex skills, and so long as a healthy rate of economic growth is maintained, there will be a greater need to ensure that they are not lost to the industry.

". . . . There is no reason to believe that an improved and forward looking coal industry providing opportunities for skilled workers in mechanised mines will not be a reasonably attractive avenue in the future. This will require proper planning, however, aimed at recruitment, training, and retention of men with necessary skills.

"Increasing mechanisation of underground mines will create a need for a broader spectrum of on-the-job training than in the past. More men actually engaged in coal mining will now need, for example, instruction in the operation of continuous miners and shuttle cars. This is best carried out on the job and it will be the duty of the State coal mines to introduce proper training schemes."

Coal Research and Development

"Research and development provide a vitally necessary background to any industry and are of particular importance to an industry which is hoping to increase its market share in a highly competitive field. To be effective, research and development needs to be soundly organised and for results in the shorter term all research will need to be mainly concentrated on projects which are practical and orientated towards the needs of the market place.

"The Coal Research Association provides a central body specially devoted to the research function and should continue to be the main vehicle for coal research in New Zealand. Accordingly it should be provided with the accommodation, personnel, and funds necessary for it to carry out its tasks."

Projects

"The experience of the Te Awamutu Dairy Co. and New Zealand Steel Ltd, which have pulverised fuel plants giving trouble-free and efficient service, demonstrates that new boilers with proper conveyors and coal-pulverising plant and using Waikato coal compare very favourably with oil-fired plant."

The White Paper recommends...

RESERVES

Proving up Reserves

1. That an initial five-year programme be prepared by the Mines Department, in conjunction with the DSIR, to urgently carry out further work which will enable New Zealand's "measured" reserves of economically recoverable and marketable coal to be increased.

2. That financial provision be made to enable this programme to be put into operation at the earliest possible opportunity.

3. That a scout drilling contract rig be established in the North Island and another in the South Island to locate further areas of coal reserves that should be included in the programme contemplated in recommendation 1 with particular emphasis being placed on reserves that could produce opencast coal.

USE

Cost of Coal Winning

4. That costings be completed by the Mines Department for production from "measured" reserves.

Coal Prospecting and Mining — Legislative Provisions

5. That the Mines Department be instructed to proceed with the drafting of an amendment to the Coal Mines Act 1925 to vest in the Crown the right to prospect and mine for all coal in New Zealand, in similar terms to those contained in the Iron and Steel Industry Act 1959 as amended.

GENERAL MARKET INFLUENCES

Coal Quality

6. That recognition be given to the need for quality control in the industry by the appointment of quality control inspectors to the staff of the State coal mines.

Coal Marketing

7. That a director of marketing be appointed to the staff of the State coal mines and that this should be a senior appointment in the department requiring the qualifications appropriate to his function.

8. That an urgent study be carried out by the State Services Efficiency Review Committee currently investigating aspects of the State coal mines, to determine marketing arrangements necessary to ensure an adequate supply and distribution of coal for household use.

Coal Pricing

9. That the price of State coal be allowed to rise in steps over a five-year period with the objective of recovering the full cost of production in the South Island as well as in the North Island.

Accounts

10. That the capital of the State coal mines be reconstructed to provide a proper commercial gearing representing both equity and loan finance as a basis for future operations.

SECTORAL DEMANDS

Households

11. That import licences continue to be made available for household coal space heaters of approved design where local manufacturers cannot meet demand.

12. That coal space heaters of approved design be installed in State rental housing except where gas space heating is available, or where coal is not readily available.

13. That increased State Advances loan limits, and personal loans from the Post Office Savings Bank, of up to $300 be made available for the installation of approved coal space heaters for homes.

Energy Sector

14. That in implementing recommendations 1, 2, and 3 (that further drilling be undertaken to prove up economically recoverable reserves) emphasis be given to those reserves which could provide coal as a fuel for the thermal generation of electricity.

Industry Sector

15. That the State Advances Corporation loan scheme for financing industrial coal-burning plant be extended to provide one-half of the

capital cost of all new coal-burning plant without limit for 10 years at a favourable rate of interest to the borrower.

16. That the Ministry of Transport be asked to review the manning criterion for coal boilers with a view to establishing whether it is still entirely relevant.
17. That the existing "Rationalisation" scheme for limiting changeovers from coal to oil be discontinued and be replaced by a scheme administered by the Ministry of Energy Resources to apply initially as follows:
    - (i) To those energy consumers of 4000 tons of coal or equivalent proposing to convert plant or to install new plant and equipment.
    - (ii) To those energy consumers who are proposing to install new plant and equipment which will bring them into the category of an energy user of 4000 tons of coal or equivalent.

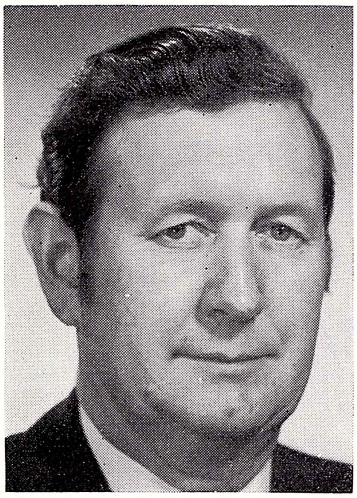
Other Consumers

18. That the Inter-departmental Committee on the Heating of Public Buildings be required to administer and report only on those cases where the expected annual fuel usage exceeds 100 tons of coal equivalent.

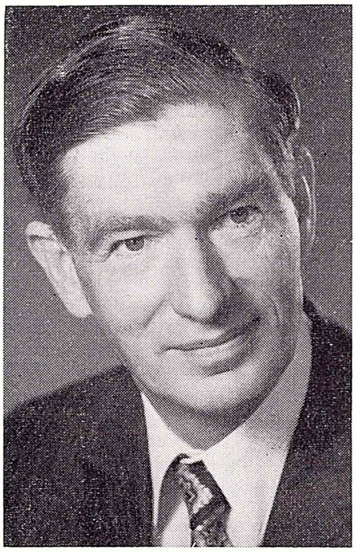
Exports

19. That no firm arrangement be entered into for the export of coal unless terms and conditions are agreed to which will provide a minimum net benefit to New Zealand related to the replacement cost of the energy potential in the coal that is exported. Further, any export price should be subject to escalation to ensure that this benefit is maintained over time.

☆ ☆ ☆



Mr R. J. Hogg, Commissioner of Energy Resources.



The Hon. F. M. Colman, Minister of Mines: "This is a most valuable appraisal of the present position and potential of the coal industry.

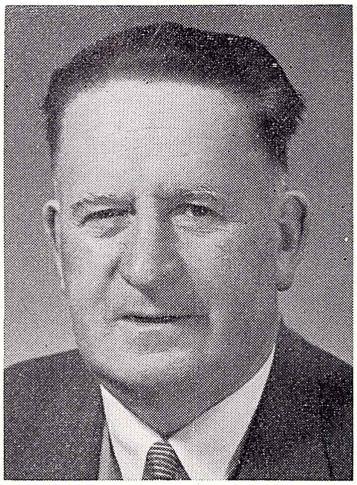
"The wide-ranging recommendations will be receiving the considered and urgent attention of the Government.

"While there may be reservations from sectional interests, the paper as a whole is good news for the industry, and the implementation of the recommendations will go a long way towards restoring coal as a major force in our energy requirements."

☆ ☆ ☆

PRODUCTION

20. That a balanced economic production pattern from both opencast and underground mines be developed for the future, which makes the best use of our coal resources.
21. That the mechanisation of underground mines be advanced as rapidly as possible to improve the price competitiveness of coal as an added incentive for increased utilisation.
22. That the Mines Department be authorised to proceed to establish an efficient and economic coal mining operation for the Buller district to meet present and future market demands.
23. That the requirement for a State Underground mining operation in Reefton be reviewed when the programme of drilling to measure whether there are sufficient economically recoverable coal reserves for the development of a new mine has been completed.
24. That the proportion of underground mining from the Ohai field be raised close to 80 per cent of the total and that a new fully mechanised underground mine be established to replace the Linton mine to ensure security of supply.



Mr A. V. Prendiville, C.B.E., President United Mineworkers: "Personally I did not feel there was any need for a white paper, as it has been obvious for a long time what was needed to put the industry on a sound basis. I covered all this in my submissions to Energy Resources concerning the papers. The paper that has been tabled is extremely disappointing, and while it contains some recommendations that are acceptable, these are the obvious ones that could and should have been implemented by the administration a long time ago.

As a whole the paper does not do anything for the industry, and can hardly offer much assistance to the Minister of Mines as a means of implementing the Labour Party's policy on coal, as stated in the 1972 Election manifesto.

"It offers scant hope for the miners and their families in the Buller, Reefton and Greymouth coalfields.

"In essence it understates the value of coal in the present energy crisis, and fails to mention the savings it could make on current overseas expenditure for fuels."

☆ ☆ ☆

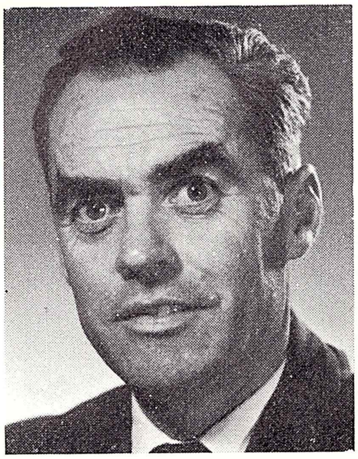
THE HUMAN FACTOR

Mobility

25. That to increase the mobility of labour employed at the State Coal mines, assistance be provided towards the cost of transfer and in the provision of housing for mine workers who are willing to accept transfer as required from one mining district to another.

Recruitment

26. That a survey be made jointly by the Mines Department and Department of Labour of the ways in which younger people with the right



Mr P. A. Toynbee, Director, Coal Research Association: "Basically it would appear that it is recognised that coal must play a more important part in the energy economy, and that's good.

"We are pleased to see the policy of the Coal Research Association in concerning itself with the needs of the marketplace are supported, and we do look forward to the research effort that is going to be forthcoming.

"Given greater resources, we can do better for coal's customers and for the coalminers who rely on our work. It is very gratifying to see the loan scheme proposed to finance industrial coal-burning plant. If this is accepted, it must give impetus to the rapidly growing interest in industrial coal. The availability of finance for the domestic consumer will have a similar effect on the domestic consumption of coal."

potential could be attracted to and retained in the coal mining industry.

Miners' Organisations

27. That the Coal Mining District's Welfare and Research Council be requested to submit to the Minister of Mines a detailed review of the special welfare and associated services that will be required for the coal industry over the next decade and to recommend what functions could appropriately be assumed by the council and how it should be instructed to carry out those functions.

28. That the Mines Department and the Department of Labour commence discussions with the United Mineworkers of New Zealand, the Waikato Enginedrivers' Union and the West Coast Enginedrivers' Union with a view to establishing a single industrial union covering all of the work force concerned with underground coal production.

TRANSPORT

Sea

29. That the possibilities of introducing tug and barge transportation of coal from the West Coast of the South Island be explored if the Ministry of Transport study demonstrates that it is economically viable.

Rail

30. That a review of the transportation requirements of the coal industry be carried out by the Ministry of Transport to ensure that where rail services can appropriately be used, they adequately meet all the reasonable requirements of coal producers to supply available markets.

31. That the existing rail freight subsidy system be maintained, subject to periodic review.

RESEARCH AND DEVELOPMENT

Coal Research Association

32. That the terms of reference of the State Services Efficiency Review Committee be extended to include a full investigation of the functions and responsibilities of the CRA including the organisation of the association, the representation on its executive board, its staffing, location, accommodation, equipment, and funding.

33. That the research projects 1 to 8 (discussed in the White Paper) be referred to the New Zealand Energy Research and Development Committee for consideration in the funding of additional research.

District Heating

34. That the value of establishing a coal-fired central heating and hot water system for areas of high-density housing be investigated by the Ministry of Works and Development.

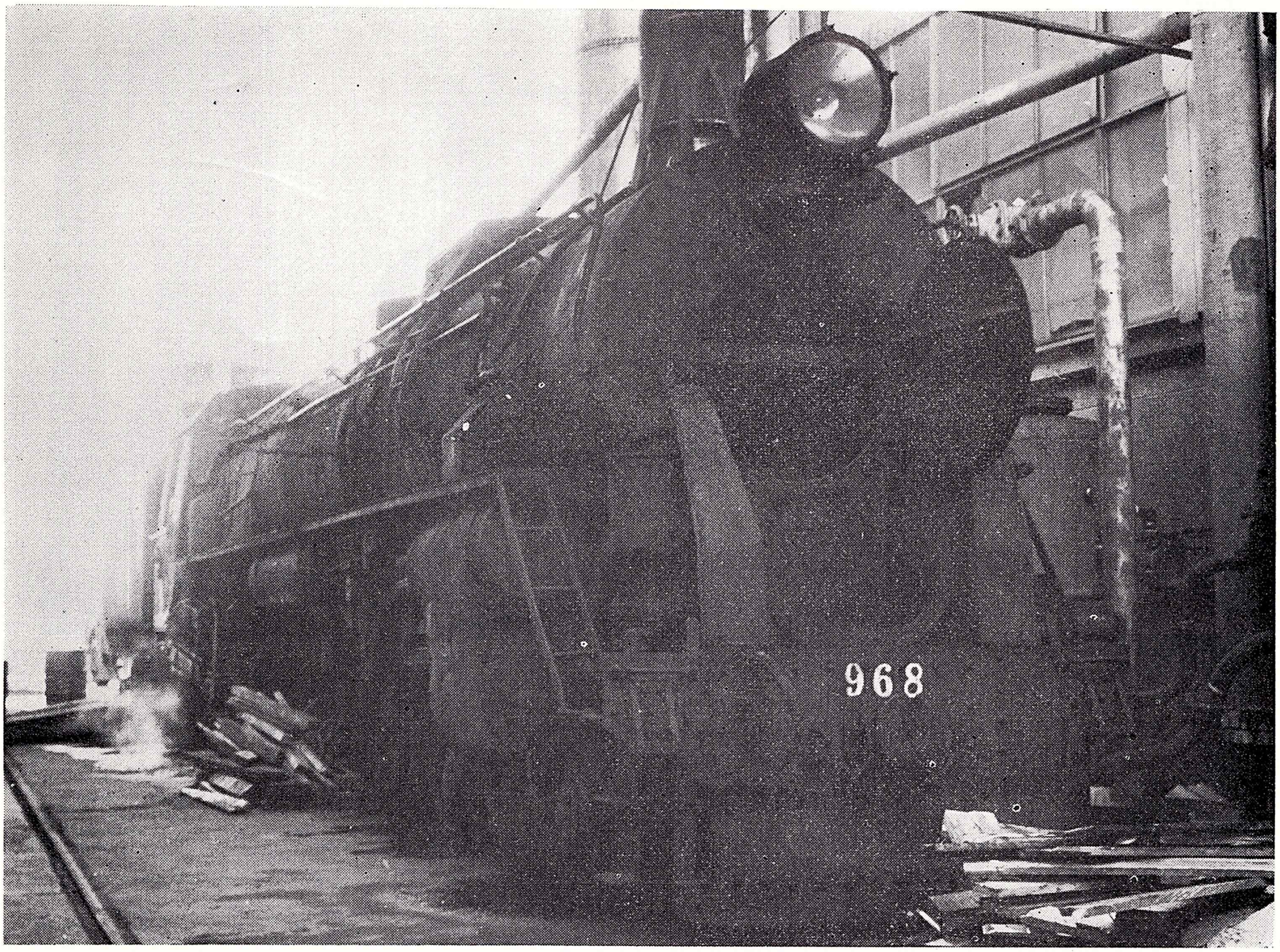
Serving industry

for nearly 50 years

DAVID LLOYD LTD.

WHOLESALERS OF INDUSTRIAL COAL

AUCKLAND: P.O. Box 531. Phone 33-446. Tel. DAVLOYD



A retired film star which has lost none of her power: Kb no. 968 prepares for a day's steaming at the Alliance Freezing Works, Invercargill. An extension to her funnel carries any combustion fumes clear of the surrounding buildings.

RETIRED FILM STAR RAISES STEAM

"Coal" experienced the thrill of meeting a genuine film actress — retired, but capable still of a hard day's work and one whose fans are never likely to desert her.

Kb no. 968, one of the two railway engines which starred in the popular "Kb Country" film by the National Film Unit, emerged from retirement at Christchurch recently to prove she could still raise a mighty head of steam from good, well-fired coal.

When steaming capacity at the Alliance Freezing Works at Invercargill became inadequate for demand, pending delivery of a new coal-fired boiler, the works called for a railway locomotive to provide the extra steam. An Ab from the Kingston Flyer was lent by New Zealand Railways while Kb no. 968, now owned by the Ferrymead Museum at Christchurch, had a boiler check.

With boiler certified, Kb no. 968 took over helping steam production at Alliance — a change from hauling trains of coal wagons from the West Coast coal mines from Arthur's Pass to Christchurch, but one where she could show herself capable still of a hard day's work.

Burning seven or eight tons of coal a day, hand-fired through the butterfly doors on the firebox, Kb no. 968 has ably measured up to her task.

"There's something about steam that doesn't get out of your system," Mr Atholl Reid, driver/fireman for the Kb while it worked at Alliance, told "Coal".

Mr Reid began work on farms when he left school, and then joined NZR at Invercargill where he fired for 13 years on engines such as the F, Wf, U, Ba, Q, A, Ab, J (with original streamlining) and Ja.

"No use being a dud fireman with the narrow boxes, like the U class had," he said of his experience.

Mr Reid left the NZR in January after 30 years to farm 250 acres in the Rimu area in Southland. It was a farm that began as 20 acres nine years before, and was added to over the years to bring it to its present size.

"I did it to get away from shiftwork,' 'he said.

The Kb class of locomotive, 4-8-4 weighing 146.2 tons,

RETIRED FILM STAR

(Continued from page 13)

was one of the last developments of steam by New Zealand Railways. Six were built, in 1939, and remained in service until the end of steam.

The Kb differed from the K and Ka class because of a booster engine, of two cylinders, mounted on the trailing truck. This could be coupled up at low speeds to provide extra power on difficult grades.

Kbs were used mainly on the Midland Line, the section between Christchurch and Arthur's Pass, where they could haul 550 ton trains up the one in 50 grades. This was twice the capacity of the Ab class which they replaced.

One of the class, no. 967, once hauled a train of 15 passenger cars weighing 435 tons from Ashburton to Christchurch, a distance of 52.2 miles, in 67 minutes. This time included stops at Rakaia and Burnham.

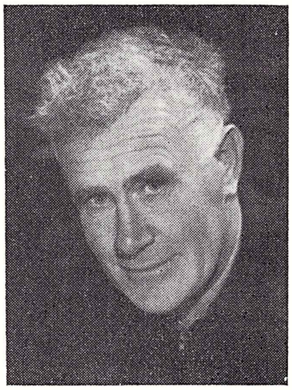
All the Kbs were coal-fired.

Mr Atholl Reid at the driver's seat — going nowhere. "There's something about steam that doesn't get out of your system," he says.

MINES MANAGER PROMOTIONS

Nine promotions, consequent on the retirements of Messrs J. Adamson (District Manager of Mines, Huntly) and J. Anderson (Manager, Liverpool Mine), have been made within the Mines Department.

MR J. E. HOLM *joined the Mines Department as Manager, Blackball Mine, in 1964, becoming Manager, Stockton, later the same year. He managed Liverpool Mine from 1966, transferring to Assistant District Manager, Greymouth the following year. In 1969 he was appointed manager of Strongman Mine, and in 1970 District Manager of Mines, Ohai.*



MR F. S. CONNEW *entered the coal mining industry at Stockton, Buller, in 1937, serving in the 2nd NZEF from 1942 until 1945. He worked at Tatu Mine (Ohura), Dobson Mine and was an underviewer at Dobson and Strongman Mines. From 1957 until 1960 he managed the Klondyke Mine, Coalgate, and then rejoined the Mines Department as Manager, Denniston, in 1961. He was Manager, Reefton, and then Manager at Dobson in 1967. Following the closing of Dobson Mine in 1969 he returned to Reefton until 1971 when he managed Strongman Mine. Last year he was appointed Inspector of Coal Mines, Huntly.*

The new appointments (with former positions bracketed) are:

Mr J. E. Holm: District Manager, Huntly (District Manager, Ohai).

Mr F. S. Connew: District Manager, Ohai (Inspector of Coal Mines, Huntly).

Mr R. A. Andrews: Inspector of Coal Mines, Huntly (Manager, Strongman Mine).

Mr H. W. Bell: Manager, Strongman Mine (Manager, Denniston).

Mr W. D. Cairns: Manager, Denniston (Manager, Reefton).

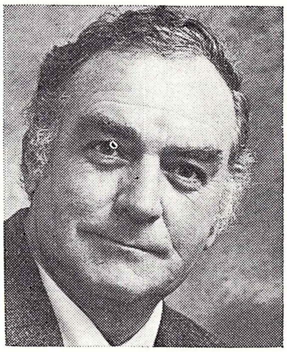
Mr R. Brown: Manager, Liverpool Mine (Manager, Morley Mine).

Mr W. J. McDonald: Manager, Reefton (Assistant Manager, Strongman Mine).

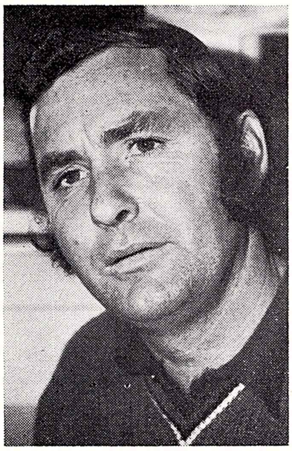
Mr F. R. Thomas: Manager, Morley Mine (Officer in Charge, Rescue Station, Huntly).

Mr W. P. Brazil: Assistant Manager, Strongman Mine (Mining Engineer's Assistant, Huntly).

☆ ☆ ☆

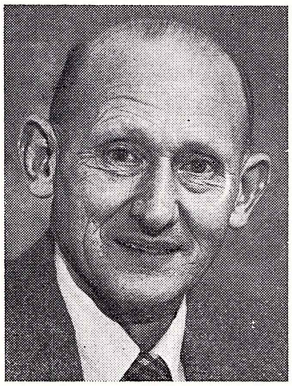


MR R. A. ANDREWS *joined the Mines Department in 1964 as Manager, Alison Mine (Huntly) and was appointed Manager of Strongman Mine last year.*



From Officer in Charge, Mines Rescue Station, Ohai, in 1967, **MR H. W. BELL** *became Assistant Manager, Strongman Mine, in 1969 and then Manager, Denniston, in 1971.*

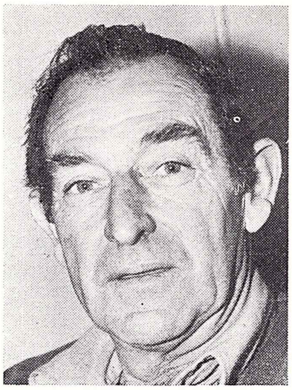
* * *



MR W. J. McDONALD *joined the Mines Department as a deputy at Sullivan Mine in 1970 and earlier this year became Assistant Manager, Strongman Mine. He served in the RNZAF during World War II.*

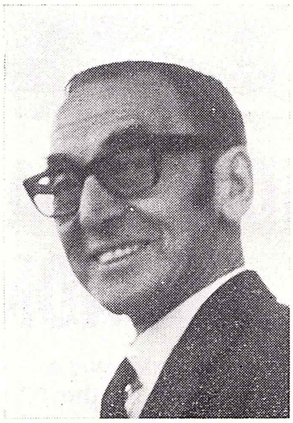
* * *

MR R. BROWN *managed Tatu Mine at Ohura from 1966 until appointed Manager at Morley Mine, Ohai in 1968.*



MR W. D. CAIRNS *was appointed a mine deputy at Alison Mine, Huntly, in 1970 and became Assistant Manager, Strongman Mine, in 1972. Last year he was appointed Manager, Reefton.*

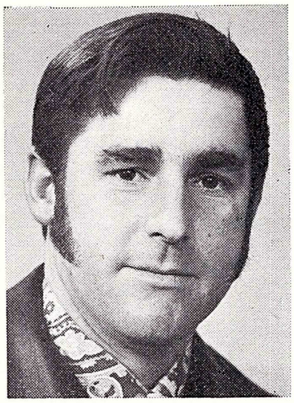
* * *



MR J. ANDERSON, *who retired as Manager of Liverpool Mine, Greymouth, on August 14, entered the coal mining industry 51 years ago. He began at the Ashington Coal Co. in England in 1923 as a haulage hand, immigrating to New Zealand in 1928. He worked at Glen Afton Collieries in the Waikato, becoming an acting deputy in the years 1935 to 1944, and then went gold mining until 1947. He returned to Glen Afton Collieries and then joined Tatu Mine at Ohura as acting surveyor and underviewer. In 1959 and 1960 Mr Anderson was with the Westport-Charming Creek Mine, and then managed the Spark and Party Mine at Greymouth from 1960 to 1963. He became manager at Tatu Mine in 1963 and then managed Wairaki Mine at Ohai in 1966. The following year he went to Liverpool Mine at Greymouth as manager.*

MR F. R. THOMAS *has been Officer in Charge, Mines Rescue Station, Huntly, since 1972. He joined the Mines Department as an underviewer at Strongman Mine in 1970.*

* * *

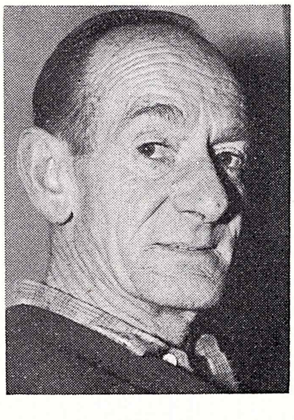


MR W. P. BRAZIL *joined the Mines Department as a mining engineer's assistant at Huntly earlier this year.*

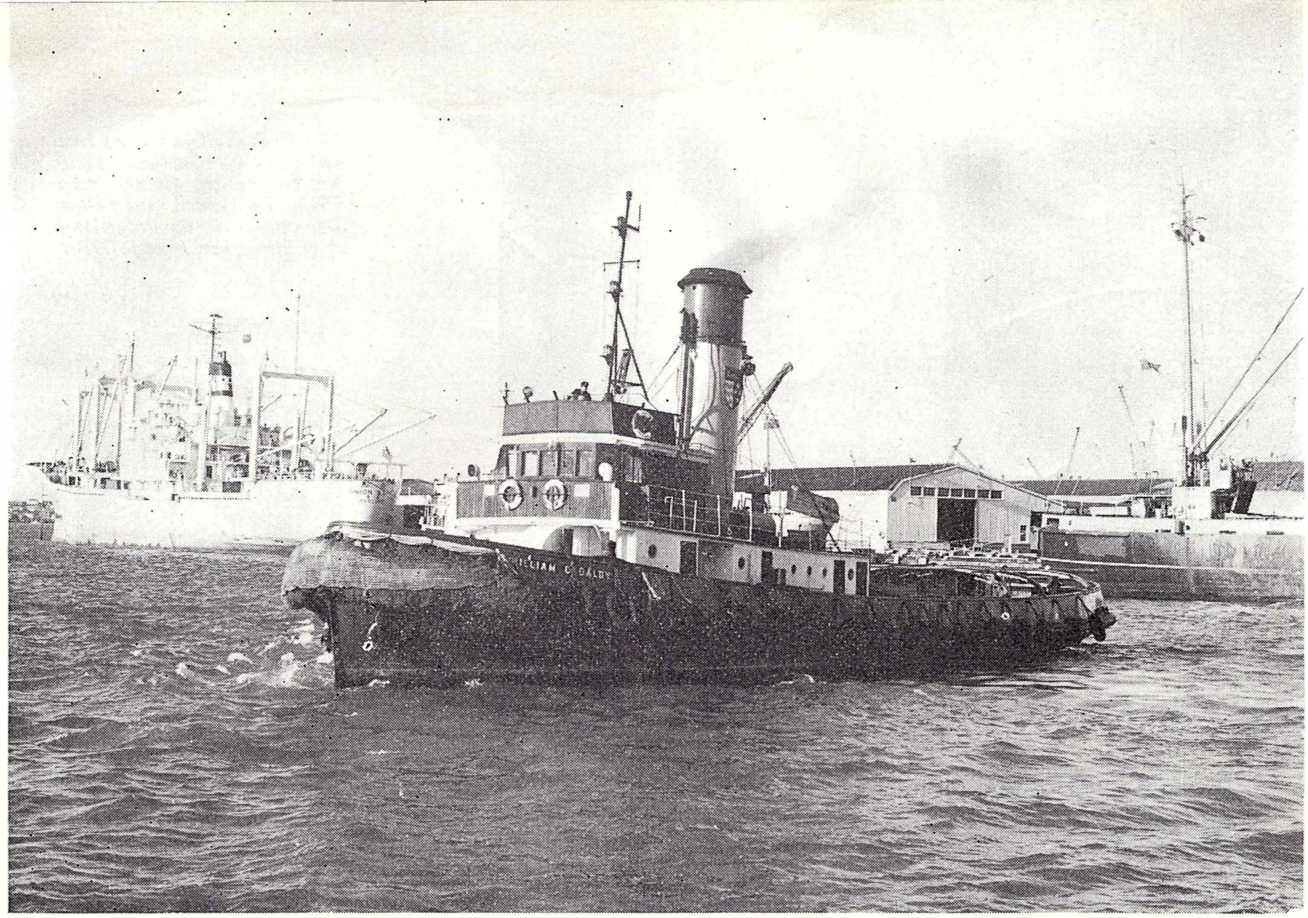
* * *

MR K. T. HESLIN, *formerly an underviewer at Liverpool, has been appointed to the Mines Rescue Station at Dobson.*

* * *



MR W. F. IRELAND *has been appointed Superintendent, Mines Rescue Stations, in succession to Mr A. Auld who retired in May. Mr Ireland is stationed at Ngakawau.*

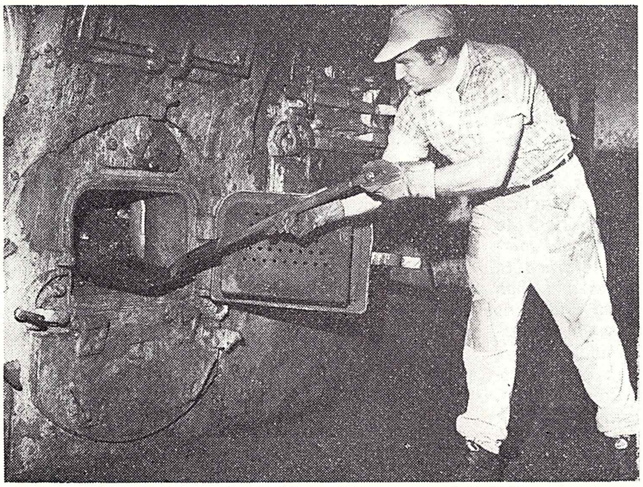


"Tireless, buffeting, bulldog power and speed" — the William C. Daldy, Auckland's coal-fired tug.

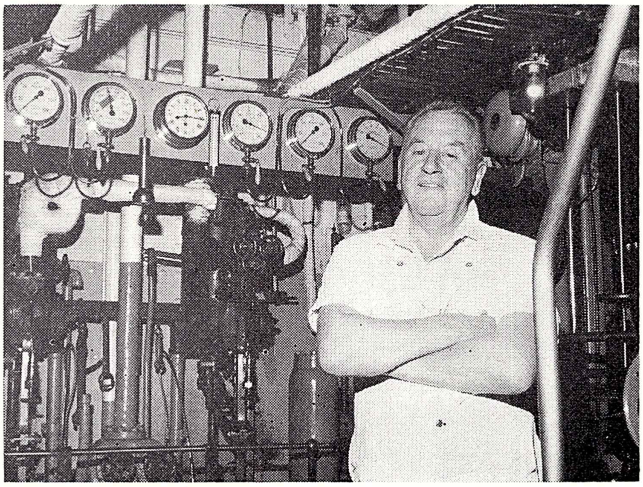
AUCKLAND'S COAL-BURNER STAYS ON ECONOMICAL COAL

"Tireless, buffeting, bulldog power and speed — that is the first and most striking impression of the William C. Daldy," reported the "New Zealand Herald" of January 31, 1936, of the Auckland Harbour Board's new tug on her arrival the previous day.

(continued on page 17)



Feeding the William C. Daldy's fires costs $42,000 a year for 15,000 tons of coal: a price that has risen only slowly from $30,000 three years ago. Cost of fuel for Auckland's other tug has doubled in the past year so that her 186,000 gallons now cost $45,000.



On the gratings, chief engineer Mr C. J. Schade.

AUCKLAND'S COAL-BURNER

(Continued from page 16)

"Aye, she's a bonny ship," said the guarantee engineer, Mr William Wallace, of Paisley, Scotland, who was on the delivery voyage from Scotland.

Aucklanders have watched the Daldy — named after the first chairman of the Auckland Harbour Board — for nearly three decades attending to her various tasks around the harbour. She was designed as a harbour tug but has done a lot of towing work including her share of emergency missions as far north as North Cape.

Before the William C. Daldy arrived in 1936, Auckland had only one tug. At that time the larger passenger vessels were beginning to arrive in port, and on November 23, 1934, the old Te Awhina had great difficulty in berthing the P& O liner Strathaird which was carrying 800 tourists.

The harbour board placed the order for a new tug the following year with Lobnitz & Co. Ltd, of Renfrew, Scotland. Thus the William C. Daldy of 346 tons gross with a length of 125 ft and draught of 12 ft 4 in. was launched. Propelled by twin-screw triple-expansion engines of 1500 horsepower, she had a bollard pull of 18.3 tons and did 12 knots at her speed trials.

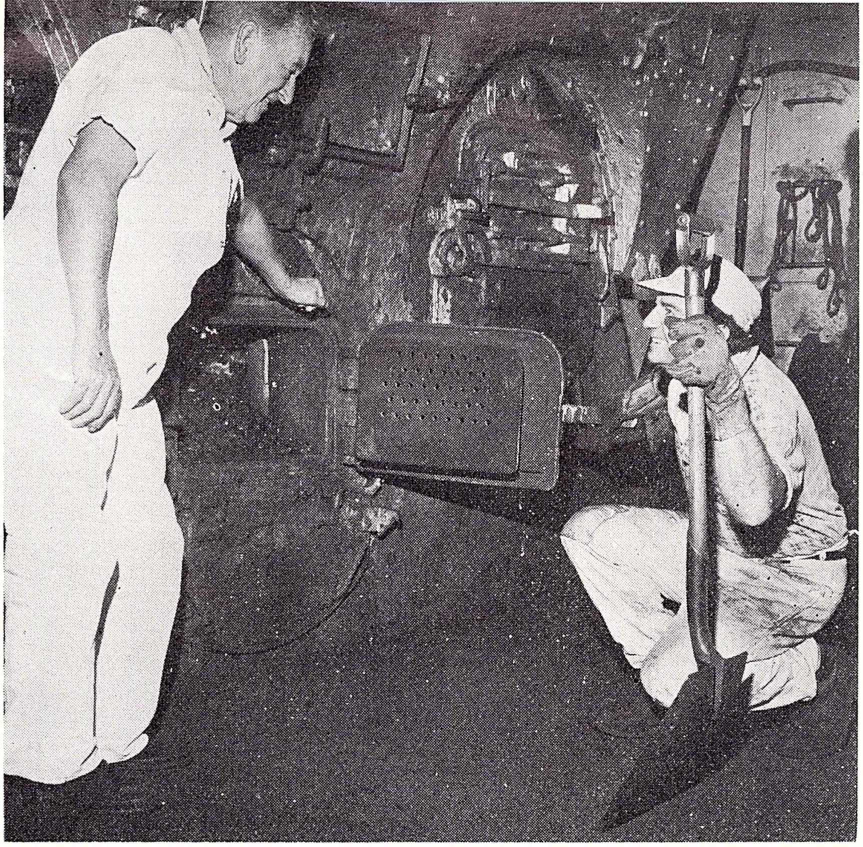
The William C. Daldy has a coal capacity of 105 tons. Steaming at 10 knots she would burn 15 tons of coal in a 24-hour steaming period.

The Daldy was commanded by Captain J. S. Corfe for her delivery voyage to New Zealand via the Suez Canal. After an inauspicious start — she carried away part of the wooden jetty on departure from Lobnitz's basin — the Daldy took 12 weeks to make the trip; and had only five tons of coal left in her bunkers on arrival.

When interviewed after his arrival here, Captain Corfe said the trip out had ben anything but a water picnic but the tug was a wonderful little vessel and would do anything but turn over.

"We had to face strong head winds and heavy seas most of the time," he said. Although the ship and her crew met heavy weather almost continuously, the vessel never took in heavy water.

Six years ago the board considered a major conversion job on the Daldy to turn her into an oil-burner. No equipment was available at the time, and so the William C. Daldy remained a coal-burner. She burns about 15,000 tons of coal a year and because of present energy problems is likely to remain a coal-burner until replaced, possibly within the next few years.



"Don't let her hit the blood!" Mr C. J. Schade, chief engineer, checks the William C. Daldy's stokehold and talks to Mr Ron Shaw (right), the fireman.

On the bridge: the master of the William C. Daldy, Captain Albert Mokomoko.

“WE RUN AT HALF THE COST!”

Some poles, 35 feet in length, are used to mount transformers for power feeds to customers.

Once used for curing bacon, a 10 h.p. coal-fired boiler now performs useful service in Southland curing pre-stressed concrete poles.

D. H. Ballantyne and Co. of Riversdale have been making power poles for the NZ Electricity Department for nine years. Previously the firm worked in reinforced concrete projects.

Each pole, weighing half a ton and 30 feet in length is formed by pouring concrete into steel channels or moulds. Wires are tensioned to compress the concrete with a load of 25 tons per pole, and then steam is slowly released over the poles.

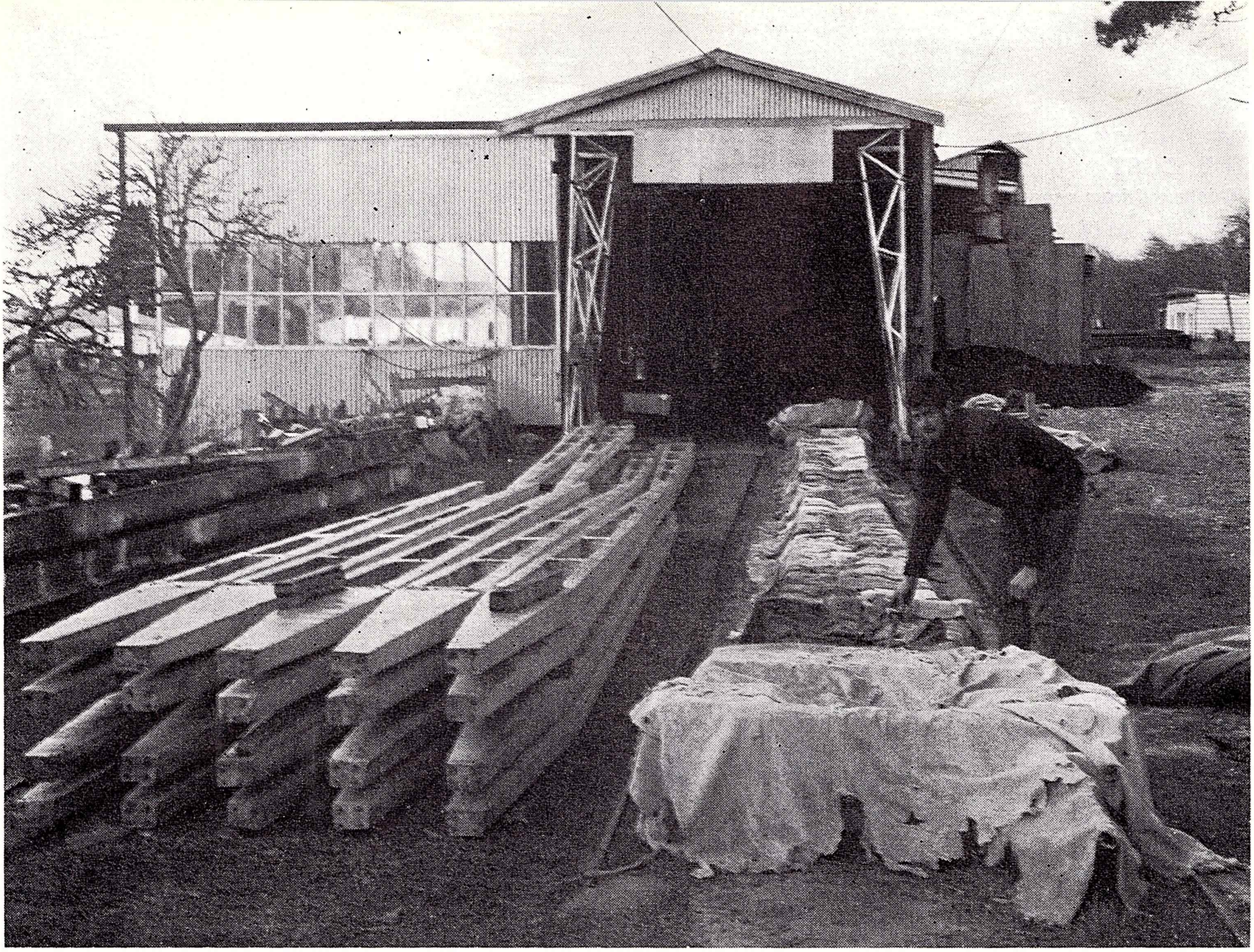
Unless the steam is brought on slowly, the concrete will crack.

When the temperature reaches 76° C it is held for eight hours.

Thus the poles are cured with a 24-hour turnaround of the moulds, otherwise without the coal-fired steam heat they would take 28 days to cure.

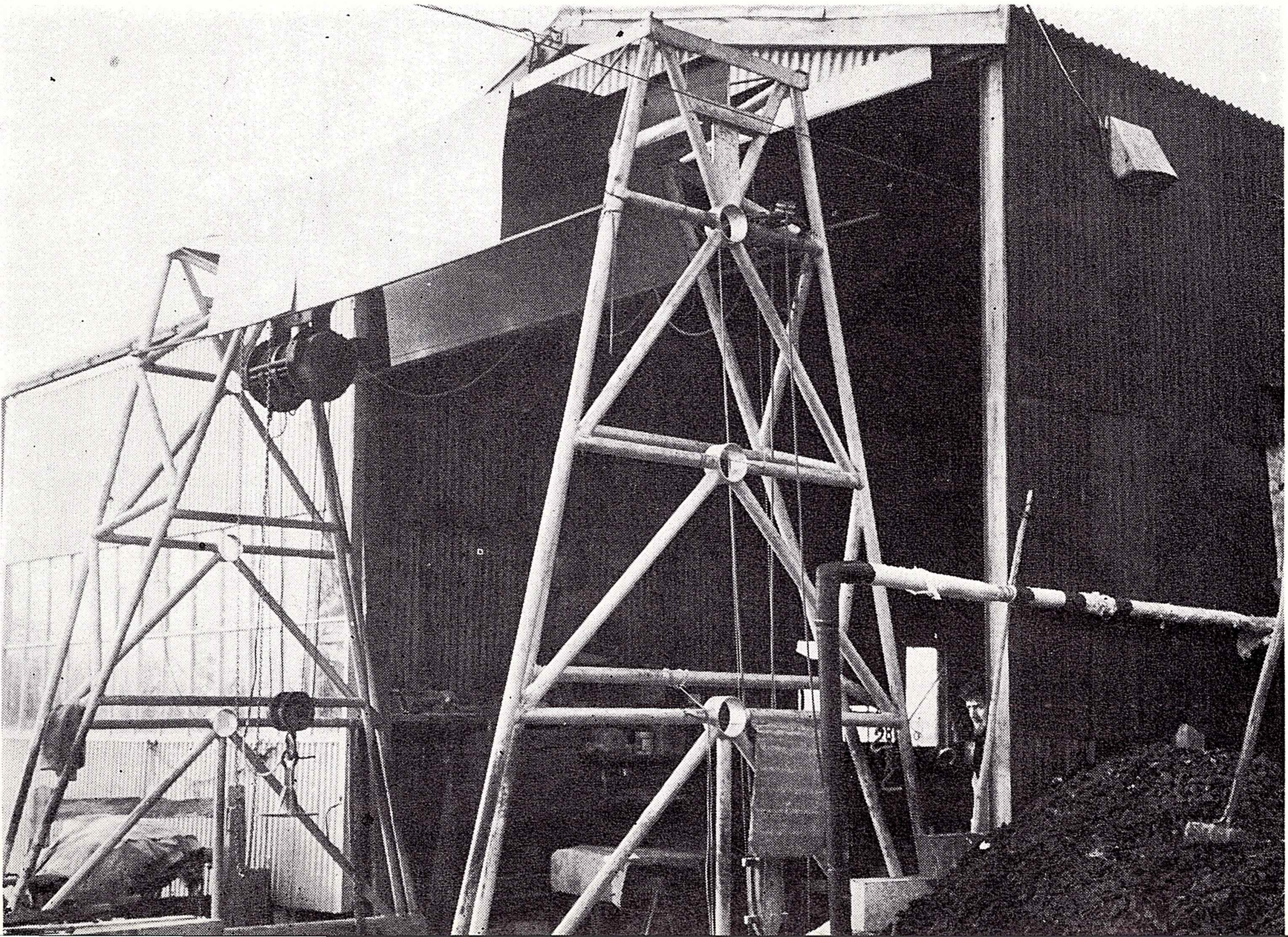
The poles are covered with plastic

(Continued on page 19)



Mr Ballantyne covers a batch of poles for steam heating. Completed poles are stacked on the left.

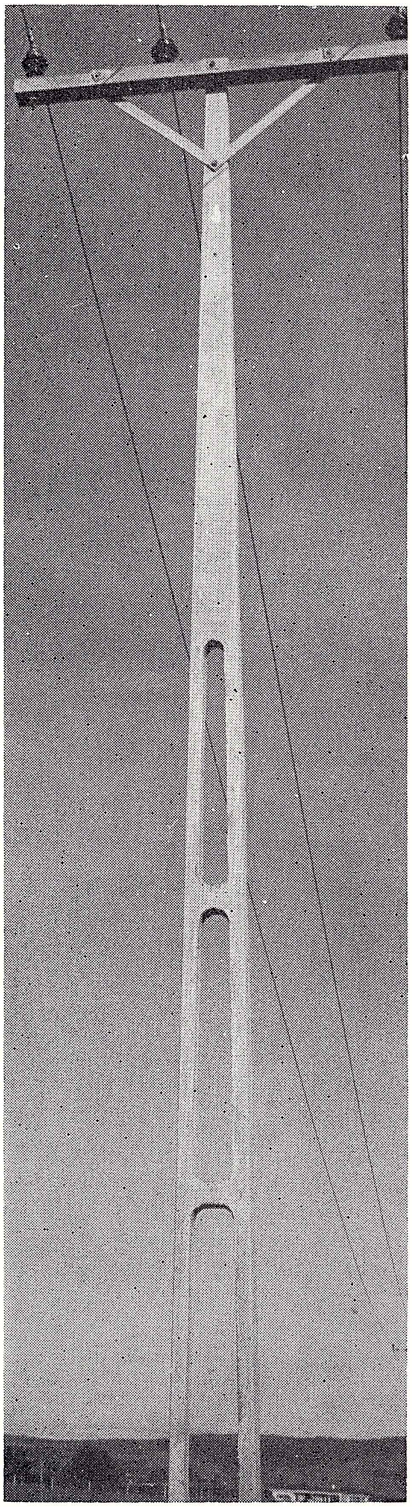
Each pole weighs half-a-ton, and the gantry runs the length of the production line to stack completed poles and load trucks. Lignite, piled on the right, in readiness to fire the boiler.



WE RUN AT HALF THE COST

(Continued from page 19)

sheet and sacking, and a steam pipe runs the length of the moulds. The pipe is perforated to release the steam around the poles for the curing process.



Power distribution in Southland, through wires carried on coal-produced, steam-cured poles.

Some poles 35 feet in length are made at the Riversdale plant. These are the ones used to mount transformers on for power feeds to consumers.

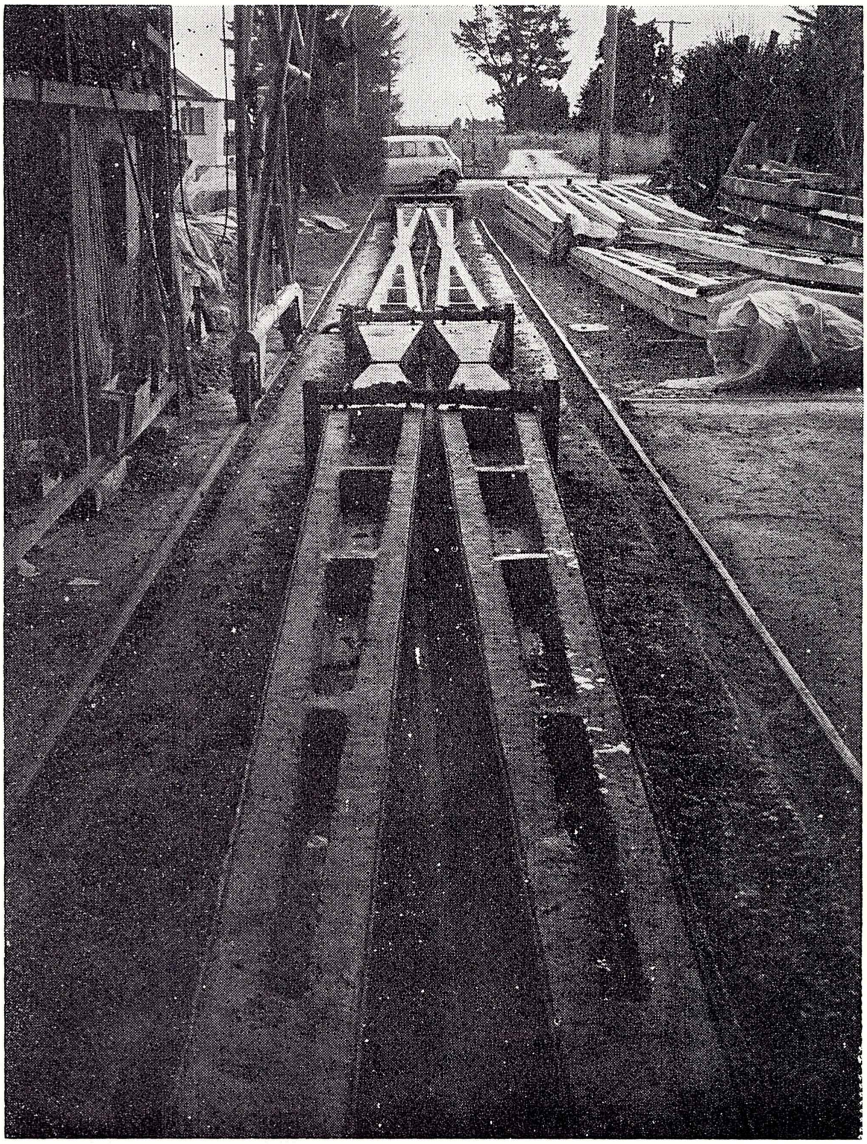
The boiler uses lignite coal from Gore collected by the firm in their own truck from Waimumu. The lignite is fed by a Robot stoker. When pressure builds up to 95 lbs p.s.i. the fire cuts off automatically until pressure falls to 75 lbs p.s.i., when it is built up again.

Usually the steam is applied about 1.00 p.m. and takes about one hour to bring the process to the right temperature. By beginning the process early in the afternoon it can go off at 8.00 p.m.

"We get coal easily down here," says Mr Ballantyne. "We run at half the cost of other fuels."

Mr Ballantyne is a son of the owner who also works at producing power poles. Mrs Ballantyne gives a hand too — cleaning moulds after a batch of poles has cured.

☆ ☆ ☆



Poles in moulds. Steam is released from the pipe running between the pairs.

A new look for coal mining — and men

The Alpine Miner, recently introduced for coal production in the Ohai coalfield, promises a new look for coal mining and men in the Southland sub-bituminous coal field.

"It has been realised for some considerable time that the present hand methods of mining are out of date," says Mr R. Brown, manager of Morley Mine when the Alpine Miner went below at Ohai. "Hand methods involve too much labour."

For a given output by hand mining larger areas of ground must be opened out, maintained, and ventilated, and the extensive haulage systems waste manpower.

"The secret of success is to intensify mining activities so that maximum output can be obtained from relatively small areas. Thus maintenance costs are reduced and haulage is simplified.

"Concentrating work in a smaller area justifies the very high capital expenditure necessary to introduce the high performance machinery for the required higher productivity," Mr Brown says.

Scraper-Loader

During the past five years the pillar-extraction phase of mining at Ohai has been successfully mechanised by introducing scraper-loader machines.

Then it became necessary to evolve a system which would effectively mechanise development operations with coal-cutting equipment and mobile loaders or ideally, by introducing a road-header or continuous miner type machine which could completely eliminate the need for explosives in breaking out the coal.

"Our requirements appeared as if they would be most effectively satisfied by introducing a road-heading machine, which has only a modest rate of production compared with the larger continuous miners but which is more versatile," says Mr Brown. "Such a machine, equipped with a ranging cutter head, can profile the cross-section to any desired shape. It would also be capable of driving through stone as well as coal."

Mr R. Brown, manager of Morley Mine since 1968 and during the period when the Alpine Miner was introduced, has been promoted to manager of Liverpool Mine, Rewanui (Greymouth).

Because of frequent faults in the coal measures at Ohai, stone-driving is important in developing coal seams there.

Suitable

Of the various types of roadheading machines available, it appeared that the Alpine Miner was most suitable for these reasons:

Low weight — nine tonnes compared with 20-30 tonnes for other types.

Small overall dimensions — enabling operating under a broad range of strata conditions and in places with cross-sections as small as 2.7 metres wide by about 2 metres high and on gradients as steep as one in three-and-a-half.

Because the ripping section of the cutter head is in line with the longitudinal axis of the machine rather than the radial as in other types — the machine has better emphasis of weight and greater stability.

The wide crawler tracks and low ground pressure of the miner enable it to cope successfully with soft floor conditions which often occur in coal mining.

The machine can accurately profile the face cross-section in the form of an arch which with its inherent strength is the ideal shape for underground mine roadways, being almost self-supporting under a broad range of conditions.

The Alpine Miner is approximately 6.7 m long, 1.5 m high and 2 m wide at the widest point, which is the loading head.

The machine is powered by six electric (flameproof) motors totalling 100 h.p.

Two 10 h.p. motors drive the caterpillar tracks; two more operate the loader head gathering arms and scraper chain conveyor; and a fifth drives the hydraulic pump. The pump provides pressure required to traverse the cutting head boom and also to raise or lower the loading head apron.

The cutting head is powered by a 50 h.p. motor.

All of the 10 h.p. motors are identical and interchangeable.

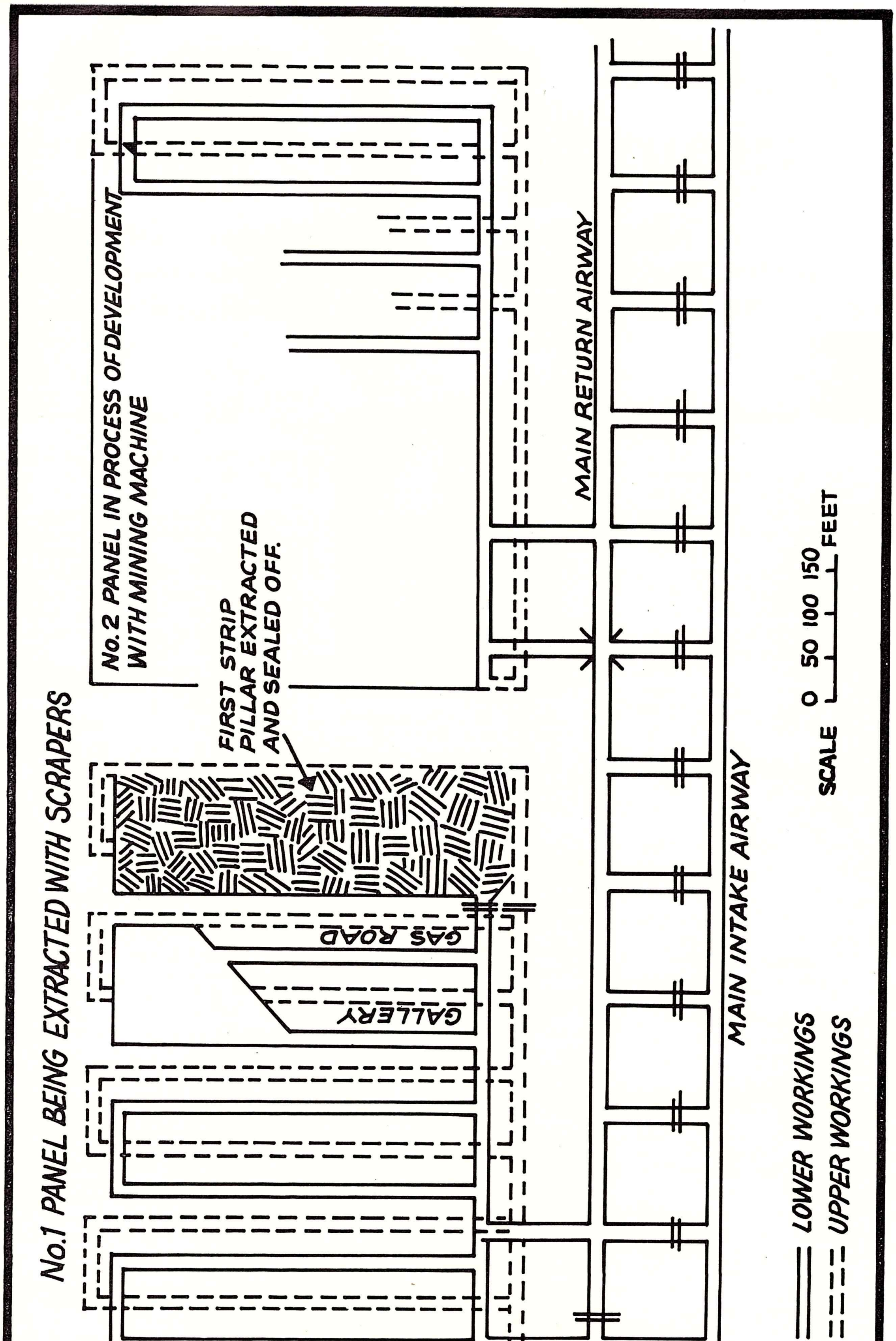
The machine is capable of cutting and loading coal or stone at rates of up to one ton per minute.

(Continued on page 23)

The plan on the opposite page gives a rough idea of the method of development which it is proposed to adopt once the new area at Morley Mine is reached. It shows how the work will be carried out with roadways driven at two horizons in the seam on the gallery principle. The seam is up to 12 metres thick and flammable gas is given off in appreciable quantities.

Strip pillars will be formed for extracting by scraper loading methods once the main haulage roadways have been driven to the boundaries of the new areas. Pillars will be extracted on retreat as shown leaving at all times a maximum amount of solid undeveloped coal behind the working areas to be developed in sequence, as required with the Alpine Miner.

Thus maximum output should be produced with a mimimum amount of ground opened up in the working panels.


No.1 PANEL BEING EXTRACTED WITH SCRAPERS
No. 2 PANEL IN PROCESS OF DEVELOPMENT WITH MINING MACHINE
FIRST STRIP PILLAR EXTRACTED AND SEALED OFF.
GAS ROAD
GALLERY
MAIN RETURN AIRWAY
MAIN INTAKE AIRWAY
SCALE 0 50 100 150 FEET
LOWER WORKINGS
UPPER WORKINGS

A NEW LOOK FOR COAL MINING

(Continued from page 21)

Head

The cutting head is equipped with 72 tungsten carbide tipped cutting bits arranged in nine spiral lines around each side of the head and various types of bit are available, depending upon the hardness of the strata to be mined.

On the cutter boom are mounted two powerful sealed beam lights. These illuminate the whole of the working place very effectively.

Dust suppression is provided by means of seven high pressure water jets strategically placed on the cutter boom.

The miner is also equipped with a methane sensor which automatically interrupts the power to the machine should the percentage of flammable gas in the working place reach a predetermined level.

Travelling along the centre line of the heading, the miner can cut out a trapezoidal cross-section up to 4.3 m wide and 3.4 m high.

Control

The controls for the various operations which the machine performs are very simple.

Separate switches are provided on a control panel to activate each of the electric motors on the machine. Two over-riding stop switches are conveniently placed to interrupt all power in an emergency.

"All of the miners with the machine are very enthusiastic about the capabilities of the unit," Mr Brown told "Coal". "Naturally they appreciate the ease with which coal can be mined compared with laborious hand methods."

Messrs I. D. Dick (Secretary of Mines), A. H. Hams (Director of Research, Australian Coal Industry Research Laboratories Ltd), W. Partel (Development Engineer, Head Office, Mines Department), and F. W. Munden (Manager, Rotowaro No. 5) have visited Ohai to see the Alpine Miner at work.

All have said that they were impressed with the machine's perform- the ease with which coal can be mined the coal face. They particularly noticed the low noise level and effective dust suppression.

The cutter boom is controlled by an easily operated joystick lever with four working positions which directly correspond to the direction the operator wishes to traverse the boom.

A second, two-position lever is provided to control the raising and lowering of the loading apron.

The coal face is mined by sumping in the cutter heads at the bottom then arcing them from one side to the other to form an initial horizontal cut at floor level.

This procedure is carried out by crowding the head into the coal by moving the machine forward about 15 cm on its caterpillar tracks then traversing the boom from one side of the face to the other. This process is repeated until the cutter head is fully sumped in.

Then the head is raised about 15 to 22 cm, (depending upon the hardness of the face), and once again rotated through its horizontal arc.

This simple operation is repeated until the full height of the cross section has been excavated with the boom being traversed through successively shorter arcs towards the top of the face and in this way cutting out an arched profile.

The cutter head propels the mined coal onto the loading head apron where two gathering arms sweep the coal onto the integral chain conveyor running through the centre of the machine.

Link

The first link in the back-up system to the Alpine Miner is a trailing belt conveyor attached to the machine by means of a tow bar with a universal joint and driven by a five h.p. electric motor which is controlled from a power take-off on the the Alpine.

This conveyor is 8 m long and its delivery end is mounted on a two-wheel pivoted bogie running on rails and straddling a Hunwood P.F. scraper chain conveyor of 10 h.p. It can be extended in 1.5 m sections up to 61 m.

Two of these chain conveyors enable the machine to mine a distance of 122 m before extending the conventional mine box haulage system.

At the mine tub loading point, the chain conveyor is elevated and discharges the coal into the mine tubs by means of a simple chute ararngement.

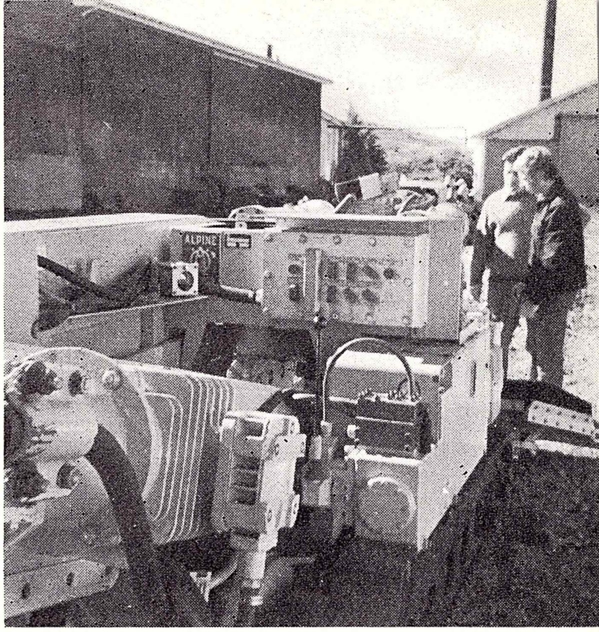
The "piggy-back" trailing conveyor enables continuous transfer of coal from the machine and accommodates the various movements associated with the manoeuvring of the machine during the different phases of the full operation of cleaning up the heading.

2200 Tonnes

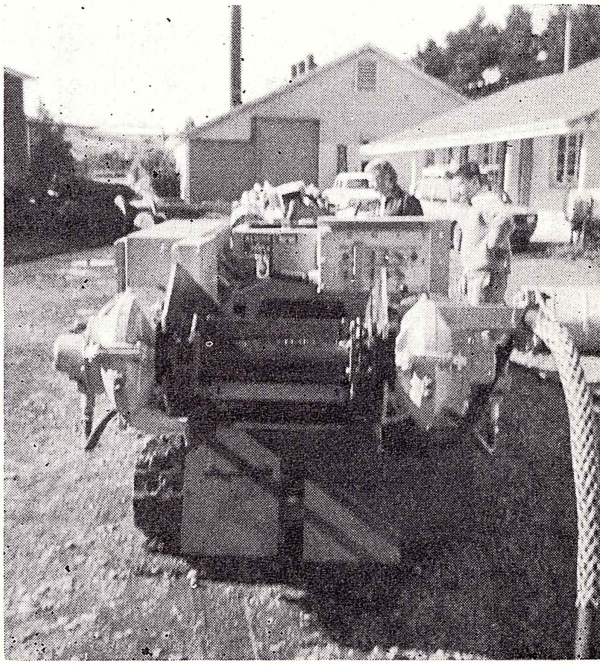
During the 10 weeks the machine has been operating at Morley it has driven in coal a total distance of 120 metres and produced over 2200 tonnes of coal.

"Teething troubles with the back-up system and mine haulage layout into the experimental area being worked have prevented the full potential of the machine being achieved," says Mr Brown. "It is evident, though, that the machine is easily able to produce at up to

(continued on page 24)

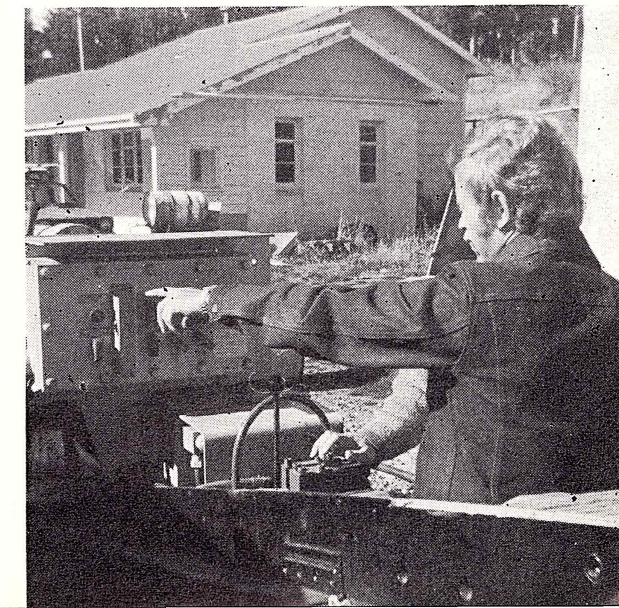


Business end of the Alpine Miner.



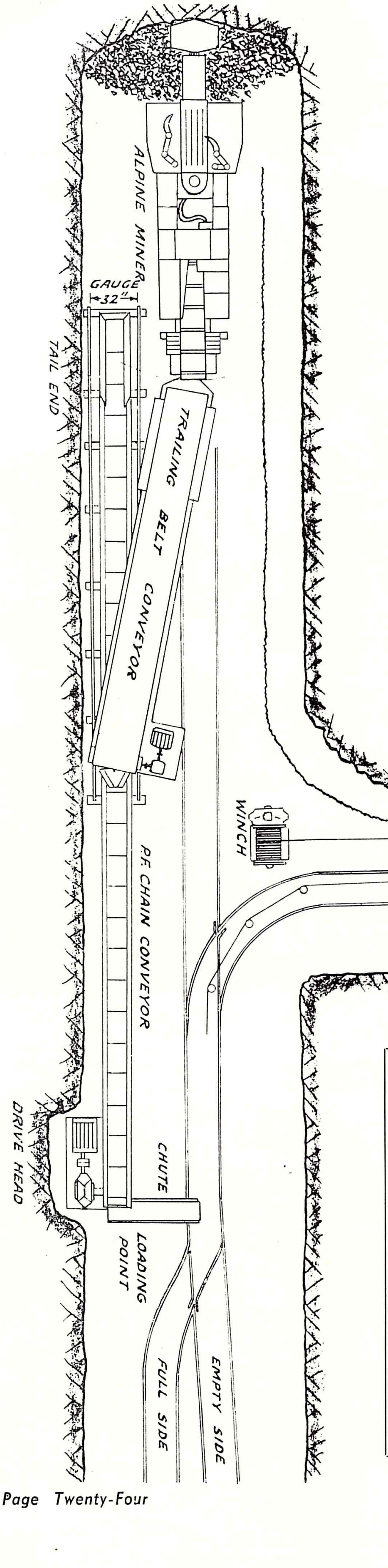
Coal comes out this end of the Alpine Miner.

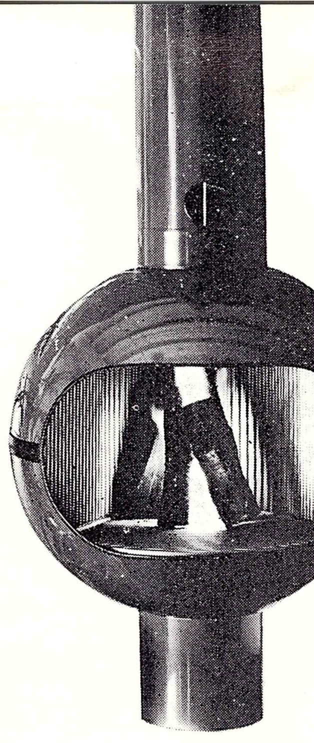
The controls for the various operations which the machine performs are very simple.



A NEW LOOK FOR COAL MINING

(Continued from page 23)





Continuing development of the traditional fireplace as an ornament as well as a necessity for the home is shown by this Handol fireplace from Sweden. Photographed in its country of origin where wood is a major fuel, the fireplaces are now being sold in England adapted for burning smokeless fuel. Such a fireplace comes complete with all its fittings: "The Handol system includes everything but the hole in the roof."

(concluded on page 44)

GRATE IDEA

Coal has been making a comeback ever since the oil crisis and electricity shortages hit the headlines. But perhaps the revival goes deeper than that.

In a recent competition at the furniture exhibition at the Epsom Showgrounds, youngsters at secondary schools were asked to design a dream living room. In nearly every plan, the youngsters placed an open fire.

As the fireplace fans insist, there is something deeply satisfying about an open fire that warmed convection currents and unseen blasts of heated air can never replace.

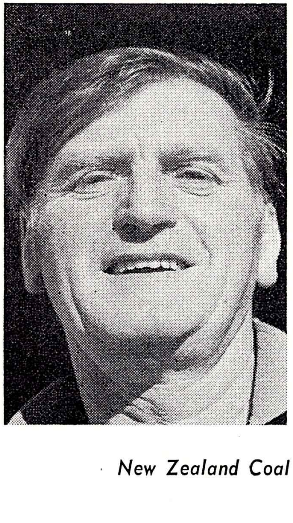
— "Mercutio", "Sunday Herald", 2/6/74.

PEOPLE IN THE COAL INDUSTRY

Meet: *Mr J. C. Cotton, manager of Stockton, who came to the New Zealand coal industry in 1952 from Cheshire, England.*

Miss Phyllis Carr, who answers the telephone and has a welcoming smile for callers to the Mines Department Head Office in Wellington.

Mr D. D. Taylor, storeman for the Mines Department at Ohai. Known as "Dinny" to friends, he was a mine deputy until an accident when he changed to his present position.



UNDERGROUND and OPENCAST

Coal miners conferred with coal mine management at Wellington in June to discuss the annual agreements on wages and conditions. Mr G. Keown, Assistant Secretary of Mines (Technical) chaired the meetings, and Mr R. Rintoul (Industrial Officer, Mines Department) was secretary.

Messrs A. V. Prendiville and M. Bassick (president and secretary, United Mineworkers) led the miners' representatives at each meeting. Representatives of the unions from the four coal fields at Ohai, Greymouth, the Buller and Huntly were present, the four district managers of the Mines Department attending the underground conference.

As well as the union representatives and district managers, representatives of opencast unions and private employers attended the opencast conference the following week. Private firms, represented were Glen Afton Collieries, Downer and Co., J. Feist and Co., W. Stephenson and Son and Maramarua Coalfields Ltd.

Underground

Opencast

☆ ☆ ☆

(Bottom right): The annual agreement conference for the Waikato Enginedrivers' (State Coal Mines) Union was held in Wellington on August 7. Conferring together were (left to right): Sitting, Messrs D. Brown (Mines Department), R. Rintoul (Industrial Officer, Mines Department and conference secretary), G. Keown (Assistant Secretary of Mines and conference chairman), J. Clout (union president) and D. H. Anderson (national union secretary). Standing: Messrs D. Lindsay (Administration Officer, Rotowaro), T. R. Glendinning (Assistant District Manager, Huntly), L. J. Reynolds (union vice-president) and D. F. Tomelty (union secretary).

Half cent of co

Half a century of coal mining culm socials for Mr Adamson, District Man he retired on 4 July.

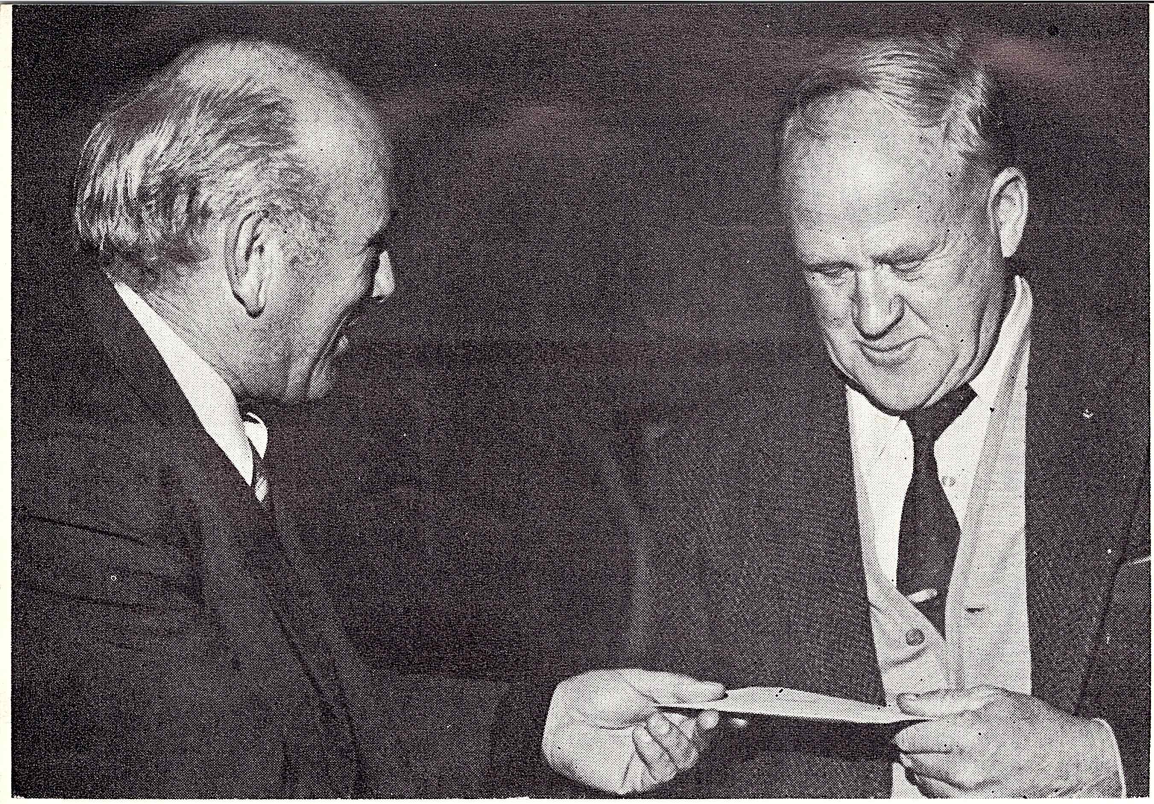
Retirement from the Mines Depa ment from the coal industry for Mr weeks of leaving the Rotowaro Min Tanzania, appointed by the Governme that country and advise on the feasibili

Jim Adamson's first 50 years of c work force at the Liverpool Mine, Gr he worked in other coal mines in the he became manager for the Westport Subsequently he managed Liverpool until 1943 when he became Inspector

The inspectorate position at Hunt he went to Australia in 1950. For two ager of Amalgamated Collieries Ltd, experienced n of mining.

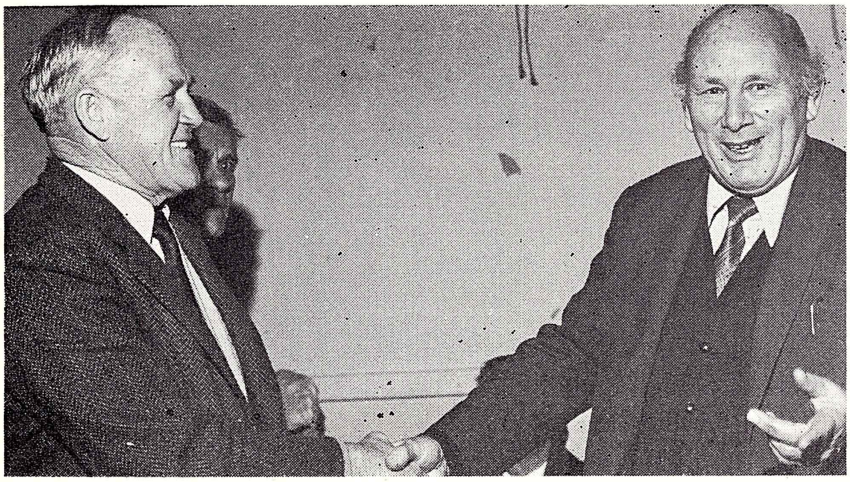
Mr Adamso Zealand to Mine from 19 next step was ant District mouth and the Ohai in 1963.

From 1965 been District



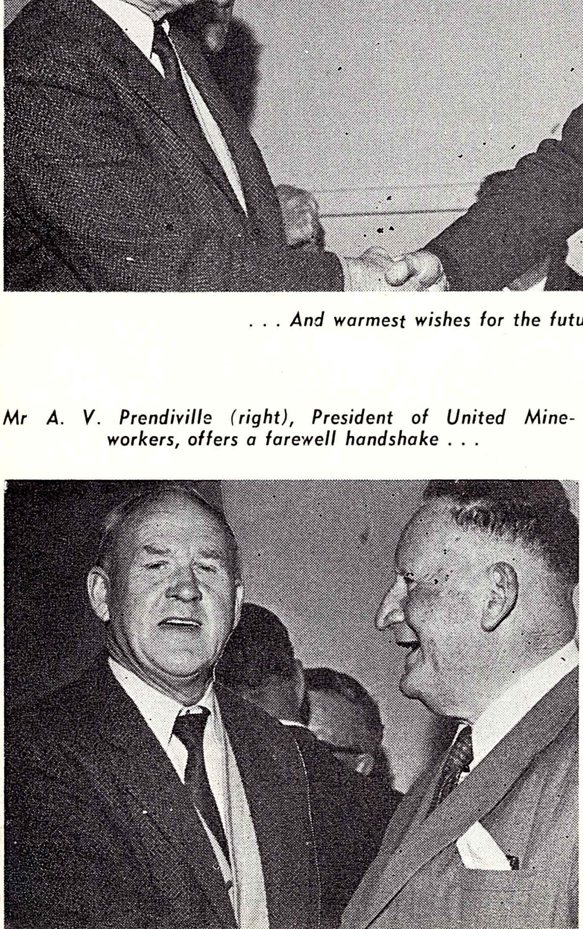
From Mr I. D. Dick, Secretary of Mines (left), a gift from Mines staff . . .

FAREWELLS . . . First to farewell Mr Adamson was the Coal Merchants' Federation. At a social at Huntly, Jim receives a gift and best wishes from Mr B. Bergin (left), the coal merchants' President.



. . . And warmest wishes for the future.

Mr A. V. Prendiville (right), President of United Mineworkers, offers a farewell handshake . . .



. . . And colleague Mr T. R. Glendinning, Assistant District Manager at Huntly says a formal goodbye.

a
ury
al

:ed in a series of farewell
r of Mines at Huntly when

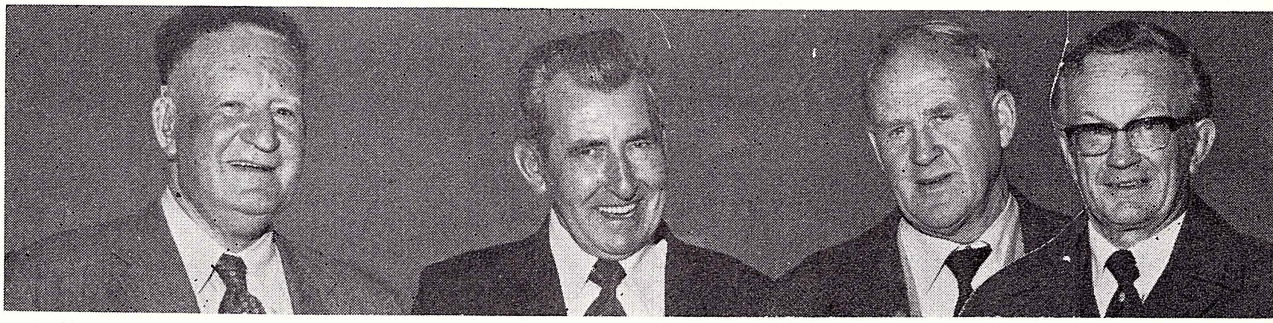
ent, however, is not retire-
amson. Within a couple of
Office he was en route to
there to investigate coal in
of working its coal reserves.
began when he joined the
nouth, in 1923. From 1929,
coalfields until 1938 when
oal Company at Denniston.
. 2 Mine and Strongman
Coal Mines at Greymouth.
followed in 1947, and then
ars Mr Adamson was man-
estern Australia, where he
nanical methods

eturned to New
nage Denniston
until 1961. His
become Assist-
nager at Grey-
istrict Manager,

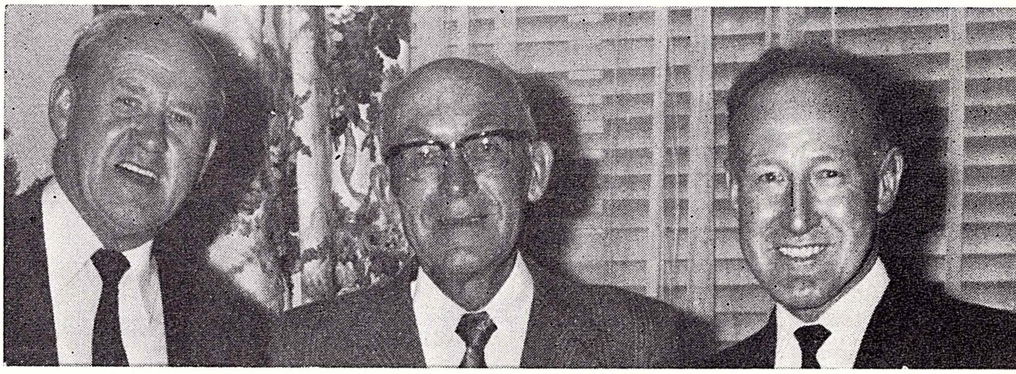
Adamson has
ager, Huntly.

Mines staff at Huntly presented flowers to Mrs Adamson (right).

COLLEAGUES AND FRIENDS at the farewell socials for M Adamson (names read from left to right): Messrs M. Mille (opencast project officer, Rotowaro), J. Crook (manager, Aliso Mine), Adamson and T. Parsonage (Glen Afton Collieries) . .



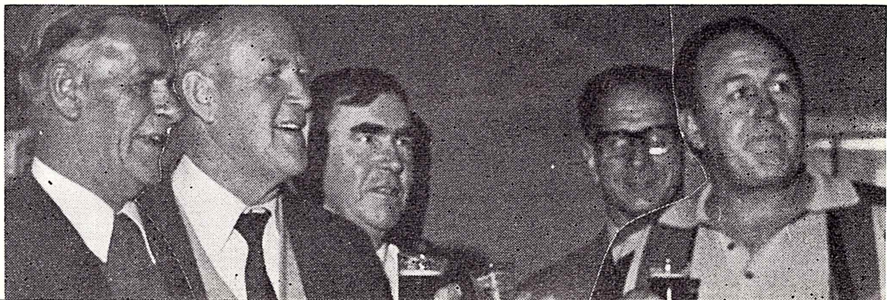
. . . Messrs A. V. Prendiville (President, United Mineworkers), G. Keown (Assistant Secretary of Mines, Technical), Adamson an C. C. Hester (Coal Mines Council) . . .

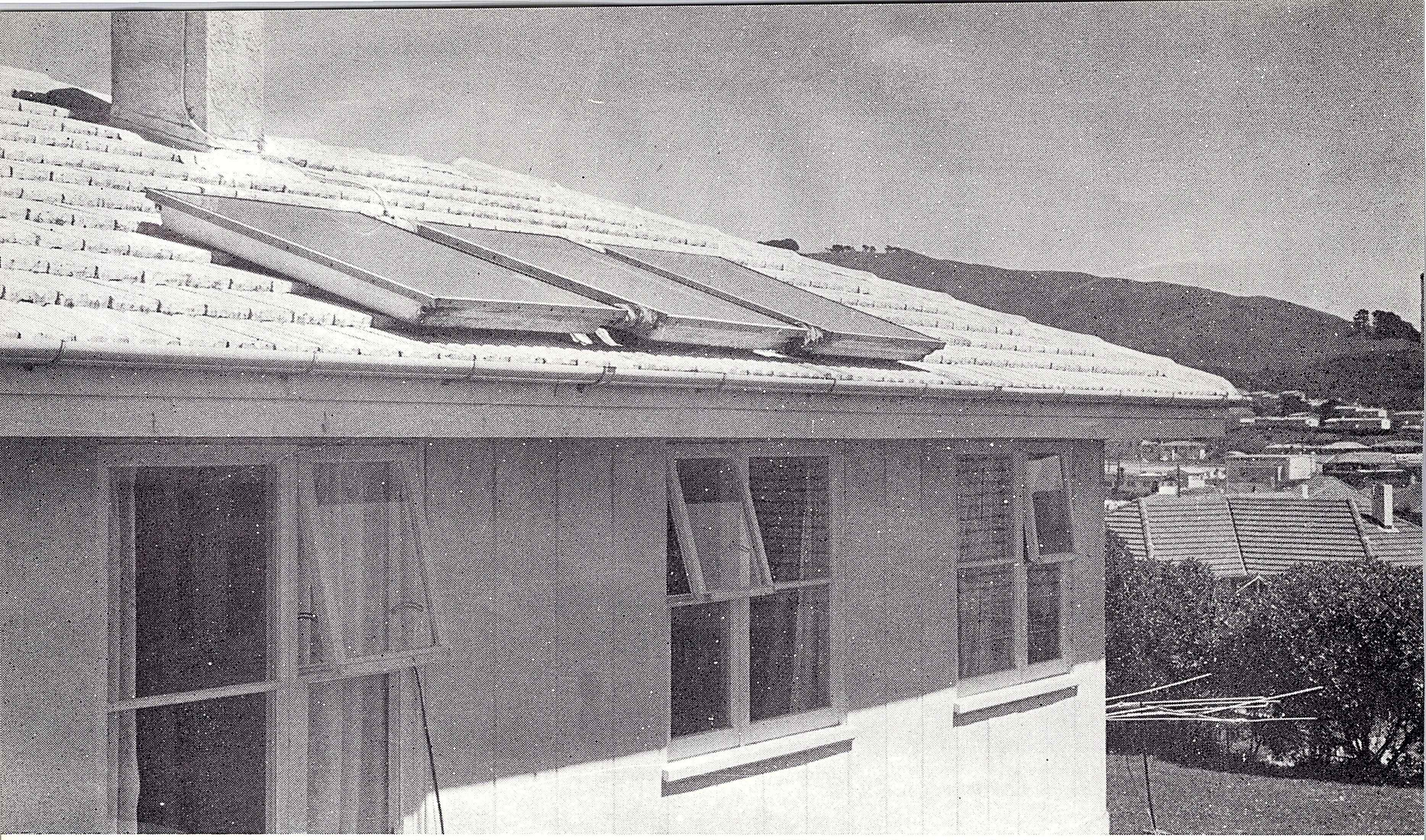


. . . Messrs Adamson, T. R. Glendinning (Assistant District Manager, Huntly), and E. Patterson (Manager Rotowaro Mine) . . .

. . . Messrs P. Tomelty (Secretary, Engine Drivers' Union), J. Clout (President, Engine Drivers' Union), D. McNeil (President, Rotowaro Miners' Union), Adamson, M. Bassick (Secretary, United Mineworkers' and Alison Miners' Unions), H. Coles (President, Alison Miners' Union) and R. Avery (secretary, Opencast Workers' Union, Waikato).

A FAREWELL TOAST . . . Messrs E. S. Thomson (Underviewer, Rotowaro No. 5), Adamson, T Brazil (Chief Inspector of Coal Mines), F. W. Munden (Manager, Rotowaro No. 5) and M McKenzie (Deputy, Rotowaro No. 5).





"A moderately sized collector of 4 to 5 square metres operating into a 180 litre tank can supply the average household with about half of its hot water."

COAL CAN COMPLEMENT SOLAR POWER

Save electricity for the nation and household costs for yourself

Coal can help . . . by reducing energy demands on New Zealand's strained electricity generating capacity, and by reducing household costs as energy prices rise.

Allied with solar heating, coal for winter and solar power for summer can effectively save electric mains power and consequent costs in providing plentiful domestic hot water supplies.

In this article, prepared by Mr R. F. Benseman of the Department of Scientific and Industrial Research "Coal" magazine sets out the way householders can contribute to power savings.

"Yes" — **you can control electricity consumption** — by using coal and solar heating in your home," says "Coal" magazine.

From being a quaint and technical backwater, solar energy is being regarded by some as the ultimate solution to the world's energy crisis. Perhaps in the very long term it may be, for there is no question of the immensity of the sun as a source of energy — three days of New Zealand sunshine, fully used, would give New Zealand enough energy to see it through to the end of the century.

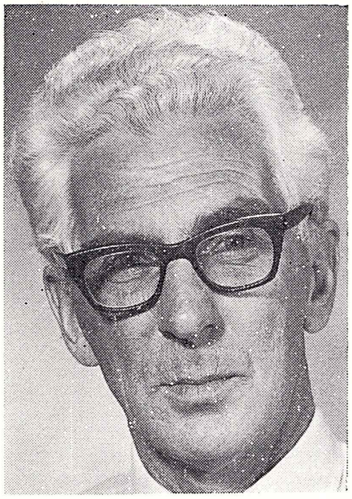
There is plenty of energy and we have the technology now, some of it admittedly fairly primitive, to use solar energy for almost any power-consuming operation: water heating, cooking, space heating, refrigeration and air conditioning, water distillation, electricity production (and hence hydrogen), and mechanical power. These are all processes that have been shown to be feasible.

But one fact must always be appreciated: while solar energy is free, the necessary equipment to use it is not. This basic truth will effectively eliminate certain developments so long as other energy sources are available, and so long as economic competition is the criterion that decides which, of different ways of performing an operation, will be the one to survive.

Solar energy is most effective at low temperatures and solar water and space-heating plant performs at quite high efficiencies. Fortunately, low-temperature heating is a major user of energy in any economy: in New Zealand, space and water heating use about 35 per cent of our total energy. A further 40 per cent is used for transport, and the rest for high temperature heating and power.

Immediate

The most likely immediate development in solar energy use in New Zealand will be for water heating and space heating.



Mr R. F. Benseman, a principal senior scientific officer of the DSIR, who is section head of the Heat Transfer Section in the department. Mr Benseman, as author of this article about solar heating, has been associated with solar heating since the project began in DSIR about 1958. The work went into recess in 1967, but has been reactivated because of the urgency in conserving electricity consumption.

Solar water heaters particularly have been widely accepted in various countries for many years and their technology is well understood. They can be bought now in this country to supply energy at a price not much greater than that from our mains electricity supply.

They are fully competitive in parts, of Australia; 3,000,000 units are in use in Japan; and for many years they were a significant source of energy in Israel. Commercial solar water heaters were available at the turn of this century in Florida. Whether they remain in any area has been determined in the past by the cost of competing energy.

DSIR research on solar water heating, beginning in 1957, has shown that there is no part of New Zealand that is barred by reasons of weather from using solar water heaters.

The energy savings in the "best" areas exceed those in the "worst" areas only by 10 per cent.

A moderately sized solar collector of 4 to 5 square metres operating into a 180 litre tank can supply the average household with about half of its hot water. The average home with an electric hot water supply uses about 4000 units of electricity annually for water heating, and so a solar water heater could save 2000 units, or $20, each year. This is not a great sum for investment and solar water heaters will have to be relatively cheap before they can compete with other sources of power.

NEW ZEALAND POWER USAGE FOR HOT WATER* WITH AND WITHOUT SOLAR HEATING

	Power Saved With Solar Heater		**Power Used Without Solar Heater**
	Thermostat Set 52°C	Thermostat Set 60°C	
AUCKLAND	1840	1250	3400
TAURANGA	2000	1400	3500
ROTORUA	1850	1300	3550
NEW PLYMOUTH	2000	1350	3600
NAPIER	2000	1400	3500
PALMERSTON NORTH	1850	1250	3650
WELLINGTON	1950	1350	3700
BLENHEIM	2200	1550	3700
WESTPORT	2000	1350	3750
GREYMOUTH	1850	1400	3750
CHRISTCHURCH	2000	1400	3800
ALEXANDRA	2100	1500	3900
DUNEDIN	2000	1400	4000
INVERCARGILL	1900	1250	4000

* To supply 205 litres daily at an average temperature of 50°C.
Units are kilowatt-hours.

Potential savings in various parts of New Zealand are detailed in the table.

Coal

But who, or what, is to supply the other half of the energy required to give a consistent supply of hot water?

Householders are now conditioned to expect hot water at all times of the year and solar energy is not always available.

Further, storing energy as hot water needs massive amounts of thermal insulation to keep the water hot from day to day. This adds to the total cost of the system and it is generally accepted that storage beyond two days is not worth while. Economic considerations dictate that the "Optimised" solar water heat supply only about 50 per cent of hot water needs for the householders. Periods of rain and cloudy weather, particularly during winter months when temperatures are low, together with limited heat storage, will mean that a solar water heater provides very little energy during these periods. So it is that solar heating in any form always requires a "back-up" system to ensure continuity of supply during periods of bad weather.

Storage

All conventional energy systems have a built-in storage facility. Oil and coal can be held indefinitely between the period they are "harvested" and the time that the energy is delivered to the consumer. Hydro-electric schemes have a similar, although somewhat less effective, storage system in the form of water held behind high dams. Solar energy, however, has a limited storage time of about one to two days for hot water supplies and up to a week for space heating systems.

It follows then that a support system is absolutely essential.

In the electric hot water service the normal thermostat/heater assembly provides the support system. It takes up the load whenever the solar water heater has not produced enough hot water while space heating loads can be taken up by gas, coal, or oil burning appliances within the home.

Coal, as the back-up for solar water heaters, has certain characteristics to recommend it.

First of all water heating using wetback attachments to the fireplace are already used in many homes: the fire normally gives enough hot water during winter months when solar water heaters are least effective.

Secondly, converting a wetback system to accept a solar water heater is not a major undertaking. Cylinders already adapted to take wetback attachments merely require the solar water heater to be placed in parallel with it so that the solar collectors substitute for the wetback during sunny weather.

Thermosyphon

Most solar water heaters have previously been built to use the natural thermosyphon action to move heat from the solar collectors to the storage tank. Like the wetback fireplace the method has the advantage of being fully automatic and needs no controls or pump to circulate the water. The disadvantage in both cases is that the storage tank must be mounted above the collector to prevent back syphoning during the night. If solar collectors are to take their "natural" position on the roof of a house then the problem of siting the tank in an aesthetically acceptable manner becomes very difficult. This is particularly true where the wetback in the fireplace has to be similarly sited below, and close to, the storage tank.

To work efficiently solar collectors have to be mounted on the north side of the house and this compounds the difficulties in ensuring thermosyphon circulation between collectors and tank, and between wetback and tank.

The DSIR is investigating small pumps for circulating the water, and the design of simple electronic controls to decide when pumps operate. Suitable pumps developed for small bore central heating are available from overseas at reasonable prices and these are being tested.

This system could easily be installed in almost any home because the plumbing is small bore tubing. It should need very little structural modification to any house. Incorporating it into a cylinder that is already adapted to accept a wetback installation would be simple.

The wetback fireplace and the solar heater show every promise of forming an easy alliance. The solar heater would provide the bulk of hot water during winter months when space heating is wanted from the fireplace.

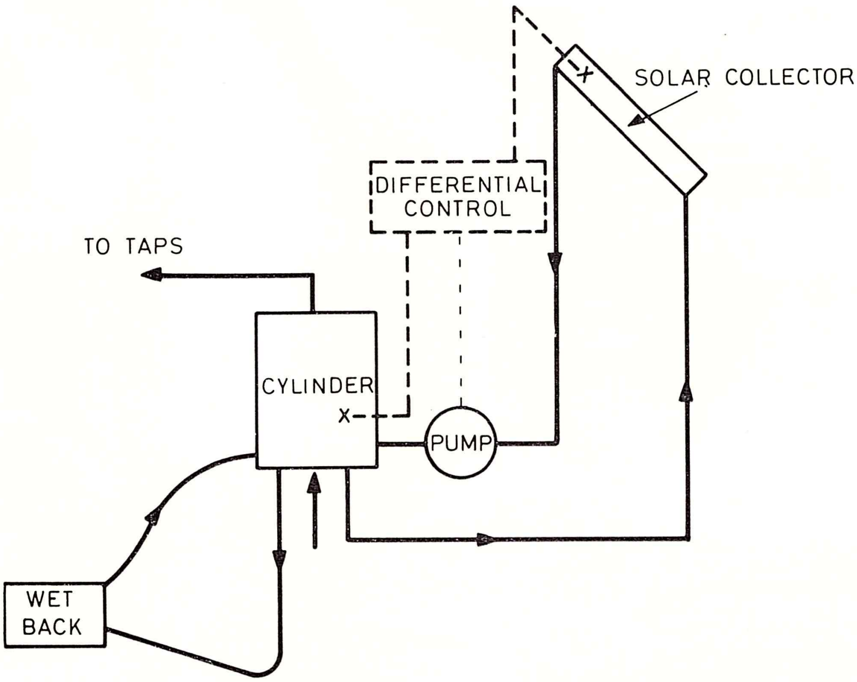


FIG. 2: INTEGRATED SOLAR—WET BACK SYSTEM.

Suggested circuit incorporating both wetback fireplace and solar water heater.

Acceptable

An acceptable circuit incorporating both wetback fireplace and solar water heater is shown in the drawing. When the sun shines, the controller (by detecting the temperature difference between the solar collectors and the water in the storage tank) determines appropriate times for the pump to operate and hot water is delivered from collector to tank. In every respect the wetback fireplace operates normally, circulating water between the availability of cheap solar collec- heating coal and storage tank whenever the fire is lit. The timing and use of the fireplace will, under most normal operating conditions, be greatest at times when sunshine is at a minimum and space heating needs are greatest.

This combined coal-solar system for water heating depends first on tors, and secondly on reliable pumps and controls for easily connecting the two components. DSIR research aims at meeting these and some progress has already been made developing suitable components.

It is only a matter of time before we can expect to see systems of this type in common use in New Zealand.

Dr Kear appointed assistant director-general to DSIR

Dr David Kear, recently appointed Assistant Director-General of the Department of Scientific and Industrial Research, has for the past seven years been Director of the Geological Survey, Lower Hutt, where he was chief economic geologist and head of the economic minerals section.

Born in Britain in 1923 and educated there, he graduated B.Sc. in both mining and engineering and mining geology at London University where he later gained his Ph.D.

His decision to come to New Zealand was formed during a wartime visit here when he was an engineer officer in HMNZS Achilles.

Dr Kear's first DSIR posting was to the Geological Survey in Greymouth in 1948. Later he was sent to Ngaruawahia to establish a district office and begin coalfield surveys.

After nine years in the Waikato he moved to Auckland and set up in a district office at Otara.

Two major industrial projects on which he was engaged were the proving of the coalfield for the Meremere steam power station, and the geological assessment of raw material resources and the siting of the Waikato Heads' steel industry.

Dr D. Kear

In 1964 Dr Kear went to North America to study the administration of economic geological surveys. He then headed the new economic minerals section and was secretary of the Mineral Resources Committee.

He attended an ECAFE meeting in Iran in 1968, and the next year was sent to Prague for the International Geological Conference.

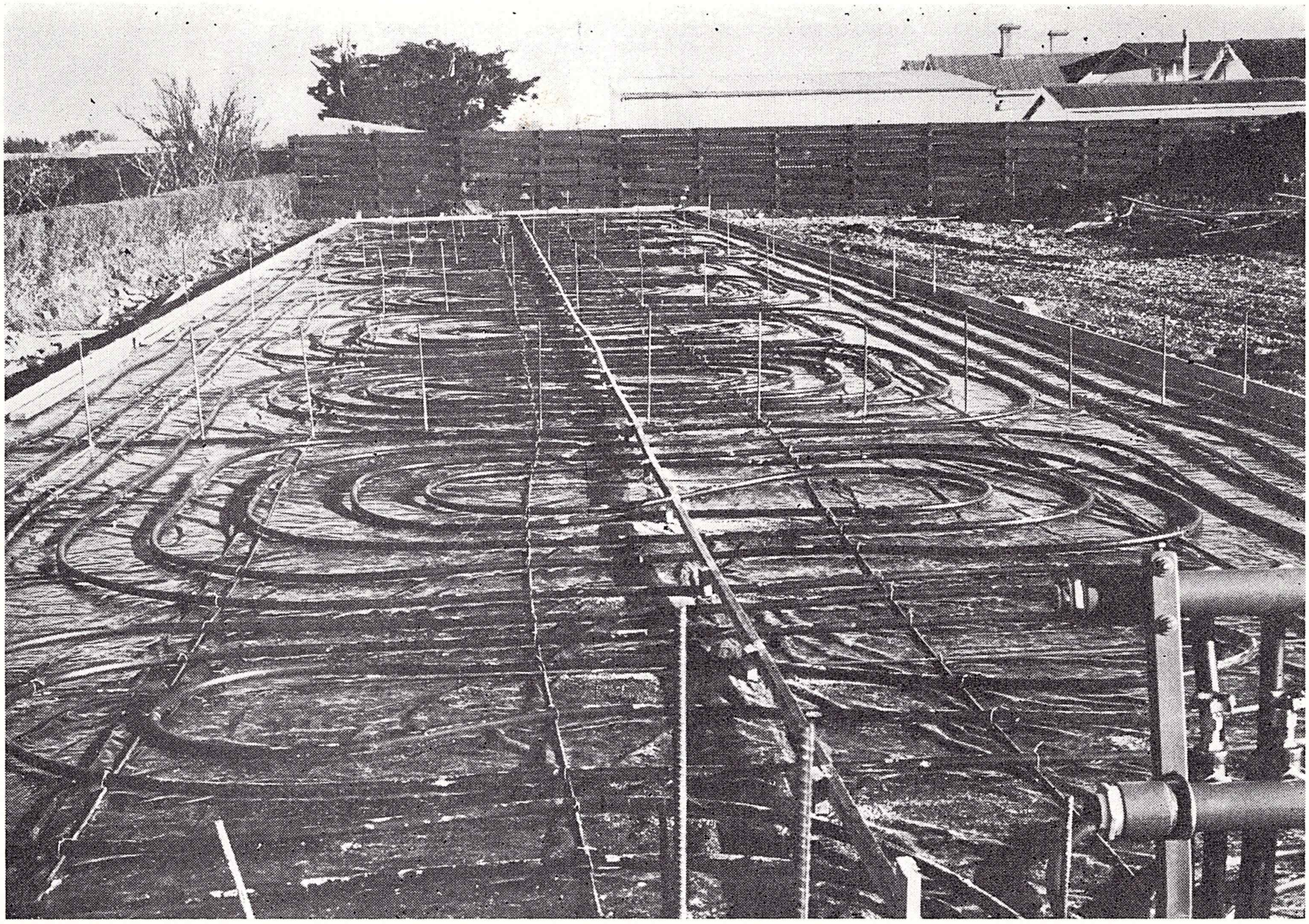
Recently he has undertaken a survey of the water resources of Western Samoa for FAO under the New Zealand bilateral aid programme.

A fellow of the Royal Society of New Zealand, he is an Associate of the Royal School of Mines, London, and a Member of the Australian Institute of Mining and Metallurgy.

Past president of the New Zealand Geological Society and a chairman of the Auckland branch of the New Zealand Association of Scientists, Dr Kear is a member of the Royal Society council and of its national committee on geology and was convener of its scientific committee on water resources.

WINTON WINTER DEFIED

New coal-warmed motels score with fuel cost savings



Laying 3500 ft of alkathene piping before the concrete floor is poured. Extra piping in particular areas allows more heat in the living areas as opposed to the bedrooms.

"Less than a dollar a day!" says Mr Colin Spruyt, owner of the Paramount Motels at Winton in Southland.

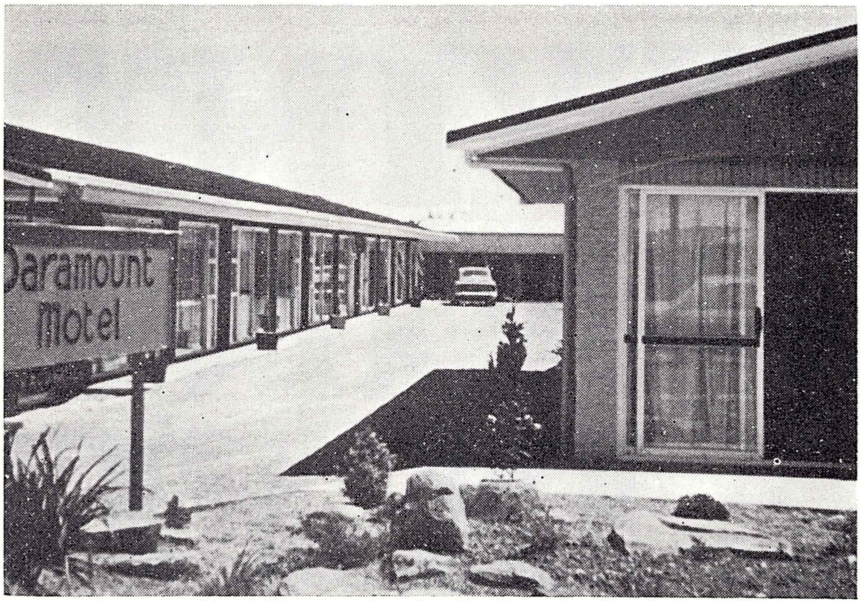
Mr Spruyt is smiling when he says it: who wouldn't, when six motels can be kept magnificently warm, and supplied with hot water for all the guests the motels can hold for less than $1.00 a day?

Although the first motel unit was ready for occupants only by last Christmas Eve, visitors have already appreciated the cosiness of these modern, warm, coal-heated motels.

"Very nice, warm, mmm'" says one comment in one of the visitors' books that have been placed in each unit.

"Very nice, cosy," says another entry.

Or try this tribute — indirectly a tribute to coal: "What a welcome for cold feet. Left with a warm heart."



Paramount Motel, Winton — 20 miles (32 kilometres) from Invercargill.

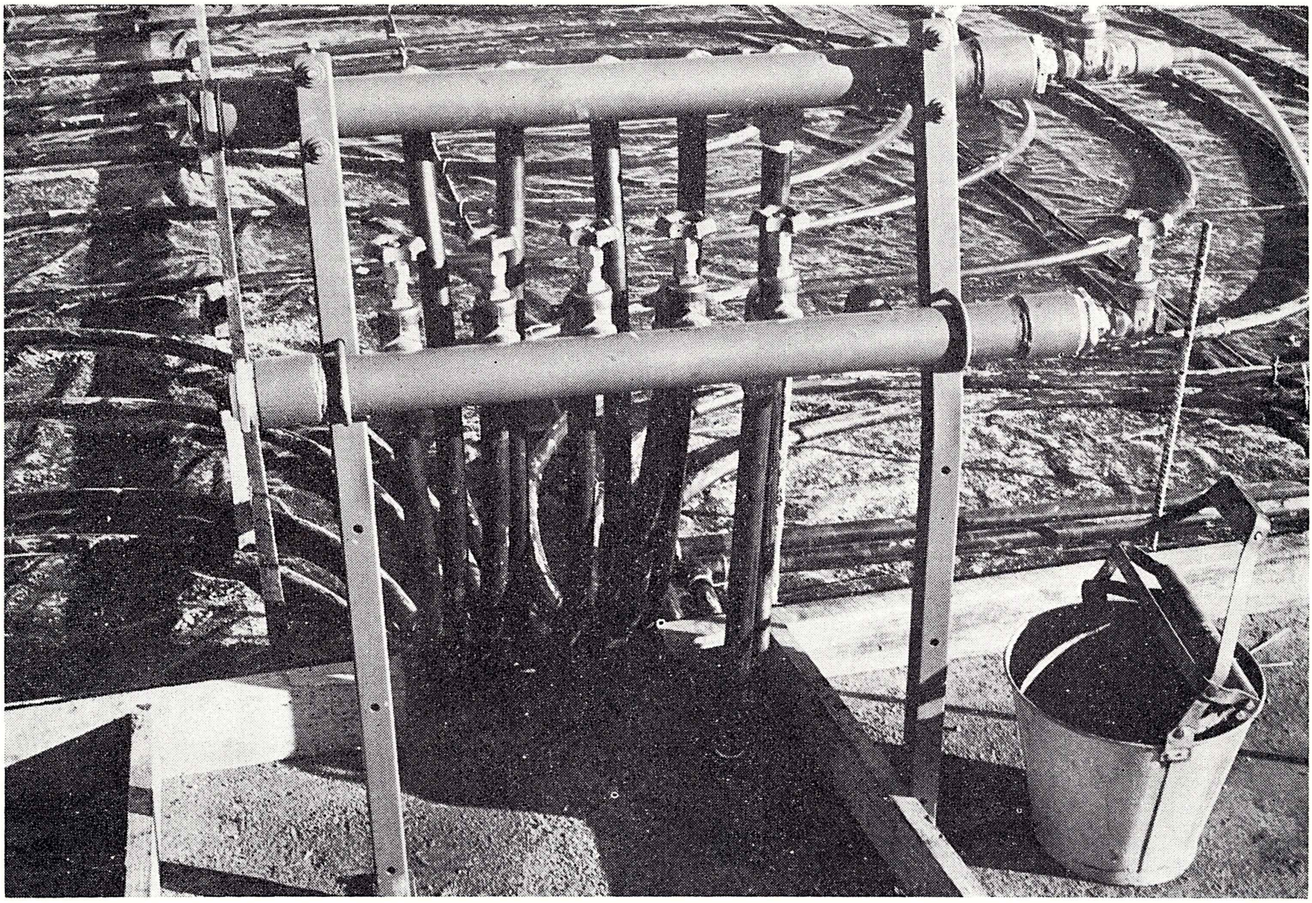
Underfloor.

Much of the success in heating the Paramount Motels comes from the underfloor heat: the technique where plastic pipes are laid in a pattern covering the floor area, and then a concrete floor is poured over them. Hot water circulates in the pipes, permeating the whole floor with warmth to rise and heat each motel room.

The water is heated by a coal-fired Superheatamatic unit, made in Winton by Doherty Bros Ltd.

It has a vertical fire-tube boiler, and a motor and gearbox in place of a ratchet. This gives quieter running with a constant instead of intermittent feed.

The 3500 ft of alkathene piping



Underfloor heating to each motel unit may be controlled independently. Pipes, before the concrete is poured, are shown connected to the unit valves.

WINTON WINTER DEFIED

(Continued from page 32)

supplying heat to 600 sq. ft of floor space for each of the six units receives water heated to 50 degrees C. Bypass feeds are arranged to keep the floor piping from receiving water at any higher temperature than 50 degrees to avoid damaging the pipes. Hot water supply for showers and washing is supplied to the motels at 80 degrees C. The equipment includes cutouts to stop water exceeding 50 degrees flowing to the underfloor heating.

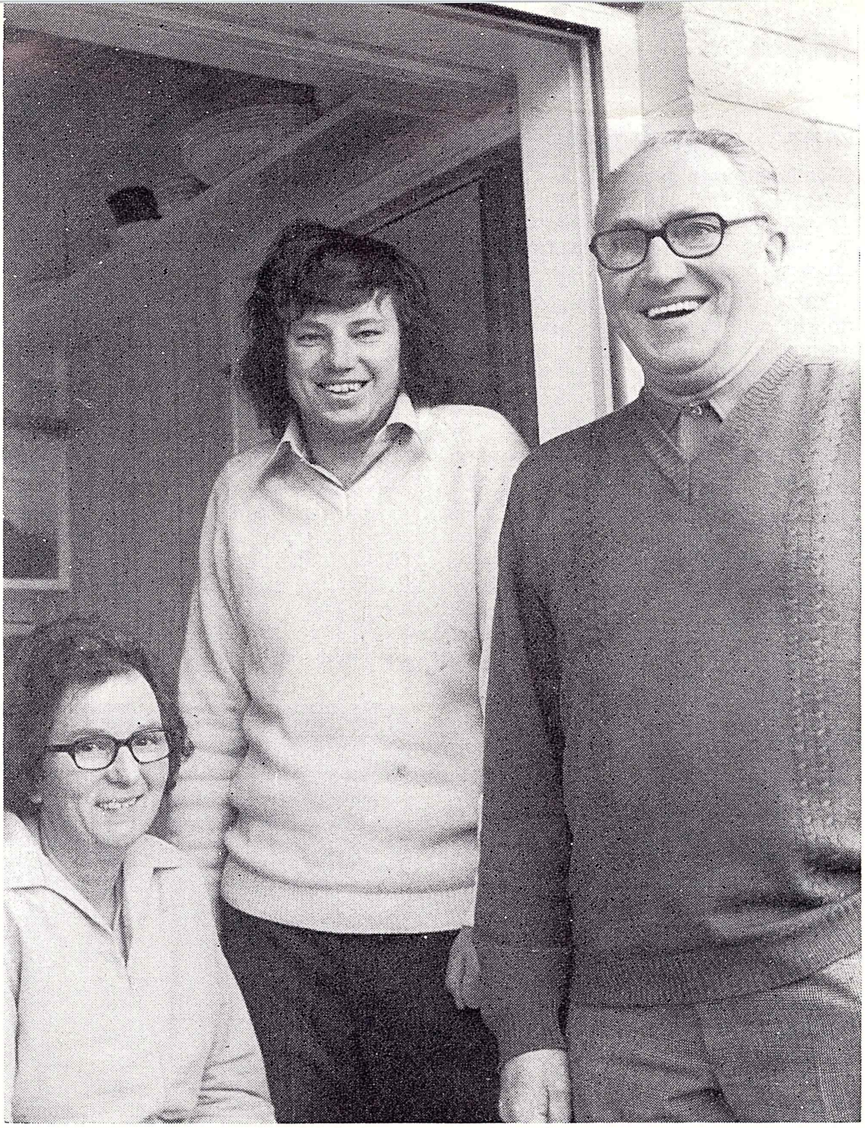
The same water circulates in the underfloor heating so that the pipes cannot scale or accumulate deposits which could gradually restrict them.

The piping under the floor of each motel unit can be switched on or off independently, although those nearest the boiler room get some heat from the piping carrying the hot water to the farther units.

The bunker can hold 10 tons of Ohai peas, and while the screw feed was not fully effective as first installed, modifications soon had it working completely satisfactorily.

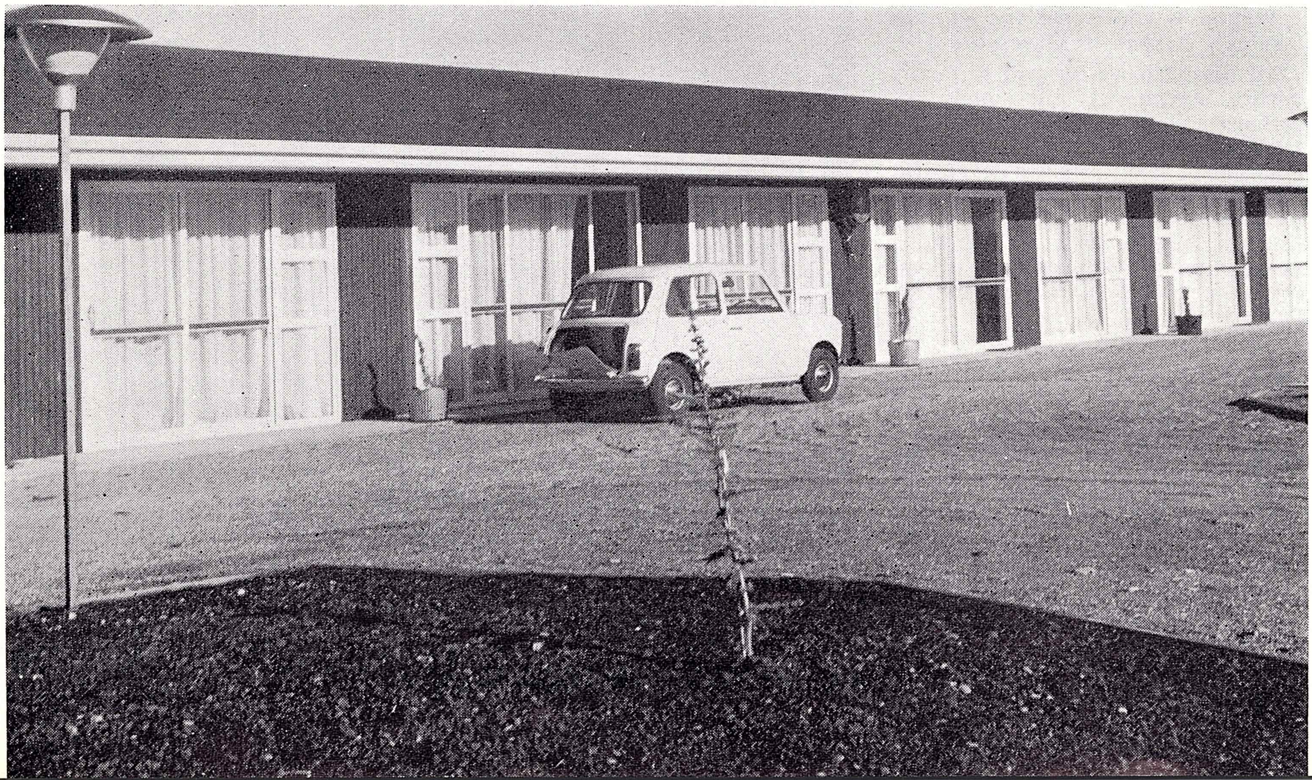
Work

For Mr Spruyt, the translation from Mynheer Spruyt of Amsterdam to Mine Host Spruyt of the Paramount Motels, Winton, has been a saga of hard work. Qualified as a cabinetmaker, Mr Spruyt wanted to travel and was planning to sail from his home city of Amsterdam as a ship's carpenter when World War II intervened. Mr Spruyt was conscripted to work in Germany. He



"I've got great confidence in this," says Mr Spruyt (right) of the coal-fired heating at the Paramount Motel. Mrs Spruyt is the daughter of a coal miner. Edwin Spruyt helps with running the motel and dairy.

A small swimming pool and children's swings are planned for future amenities for the motels.



WINTON WINTER DEFIED

(Continued from page 33)

managed to return to Holland where he worked for the resistance until the war ended.

His wife was the daughter of a Polish coalminer. She was born in France, lived in Holland, and came to New Zealand with Mr Spruyt 22 years ago.

"It's a wonderful country — we wouldn't have had the same opportunities in Holland," says Mr Spruyt.

He worked at Five Rivers near Lumsden when he first came to New Zealand and bought a dairy at Winton eight years ago.

"We had a lot of inquiries from people wanting accommodation," he says, explaining what put the idea of building motels into his head.

Proficiency

As sections about the shop became available, Mr Spruyt acquired them and built his motels. His proficiency as a cabinetmaker contributed towards their construction, as well as the expertise in building he had acquired by occasional building work since he has been in New Zealand. The dairy next door provides a service for food and other necessities for guests in the motels.

Winton is only 32 kilometres (20 miles) from Invercargill, or half an hour by car. So Winton can be a handy site for a family on holiday, close enough to Southland's capital to see its sights without the problems of traffic or city bustle and rush.

The town has a beautiful golf course, excellent fishing, and Lake Hiroka adjacent for scenery.

Winton is convenient for day car trips to Te Anau or Queenstown.

Mr Spruyt looks forward to family parties staying at his motels for perhaps a week or more at a time, holidaying in Winton's relaxed atmosphere while being able to visit Southland tourist sights and enjoy local amenities. Although not yet listed in the AA book or other hotel guides, motel occupancy has exceeded expectations in the first six months.

Honeymoon

Some honeymoon couples have stayed at the Paramount Motel after being married in Invercargill, rather than face a long drive to Queenstown or Te Anau the day of the ceremony.

"Great place for first night of marriage!" says one comment in the visitors' books.

Winter in Winton brings out the intense cold of Southland — cold beyond the comparative warmth of a Wellington southerly or a Christchurch easterly.

Outside, the cold keeps the ice on puddles frozen all day. Inside Paramount Motels, warmth becomes something physical which restores human feeling.

Slippers, unpacked and left on the floor are toasted to a comfortable warmth as well as any loving housewife could achieve as a welcome for her husband.

Electric blankets are unnecessary on the beds — coal-fired warmth rising from the floor permeates the bedclothes as effectively as an electric blanket warms a bed — without having to be remembered to be switched on or off, or to create a worry when electric power must be conserved.

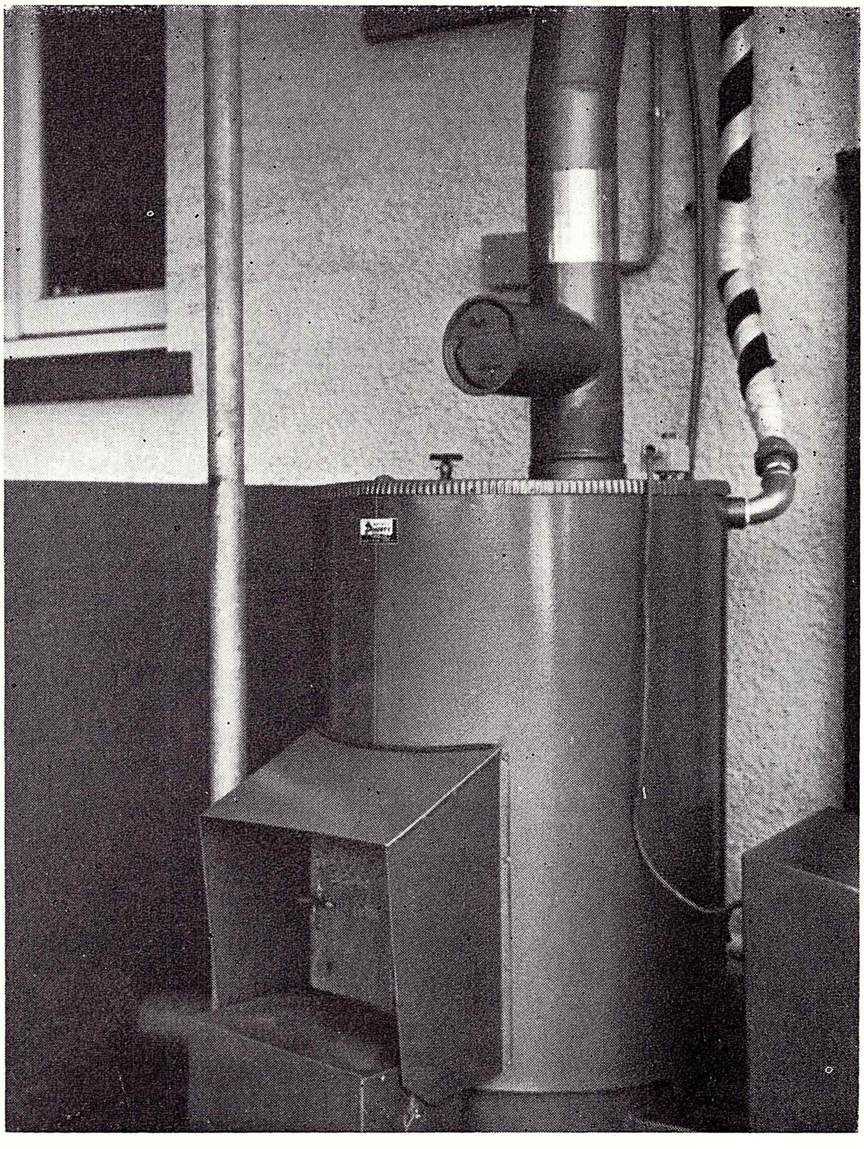
"Very comfy," Lovely and comfortable," "Extra good," and "Living at the best," in the visitors' books testify to the effectiveness of the heating system.

Confidence

"I've got great confidence in this," Mr Spruyt says when talking about the coal-fired heating system. "I wanted something else rather than imported fuel because the price overseas can't be controlled. There was no oil shortage when I ordered the plant, either."

Each motel has one double and one single bed in one room and two single beds in a separate room. The

(continued on page 41)



The Superheatamatic coal-fired heater, made in a nearby factory at Winton, supplies heat and hot water for the six motel units.

RESCUE REMINISCENCES

"Archie Auld, who retired as Superintendent of the Mines Rescue Brigade in May, can tell some amusing stories of his life in the coal industry.

"A retired miner was digging a water well," he recalls, of the time when he worked at Ohai. "Being the experienced man that he was he dropped a bit of lighted paper down the shaft before re-commencing work.

"The result was an explosion which singed his hair and eyebrows. I had to block the shaft off.

"He had dug down to old mine workings and methane had seeped up from them.

"He didn't dig any more wells after that," says Mr Auld with a grin.

"Archie's" other story is about Benneydale, and the use of canaries to detect gas.

"A workman suitably equipped with a canary went in to erect a stopping.

"When the boss went in to check sometime later he found the canary sitting out in the fresh air and the miner still working but quite drowsy.

"The miner was questioned on his reason for leaving the canary in the fresh air.

" 'The poor little fellow kept falling off his perch and I didn't want to see him killed', came the reply."

—Contributed by M. R. Smith, Runanga.

THERE IS ONLY ONE
VISOR·TYPE FIREPLACE
Insist on a genuine
VISOR
and choose from 6 models!

For over 25 years VISOR have been supplying and researching this type of open fire space heater throughout New Zealand under all conditions. Only VISOR therefore has the years of practical experience to ensure maximum efficiency and only VISOR has a full range of models to choose from.

OUR LATEST!
The 'KNIGHTSWOOD'
Available in matt black with a choice of COLOURED VITREOUS PANELS — Orange, Blue, Black, pure White or Red. Matches any decor. Designed to burn coal, carbonettes and wood.

'STANDARD WARLOCK'
'WIDE WARLOCK'
'CROFTER'
'COUNTRYMAN'
'WITCH'

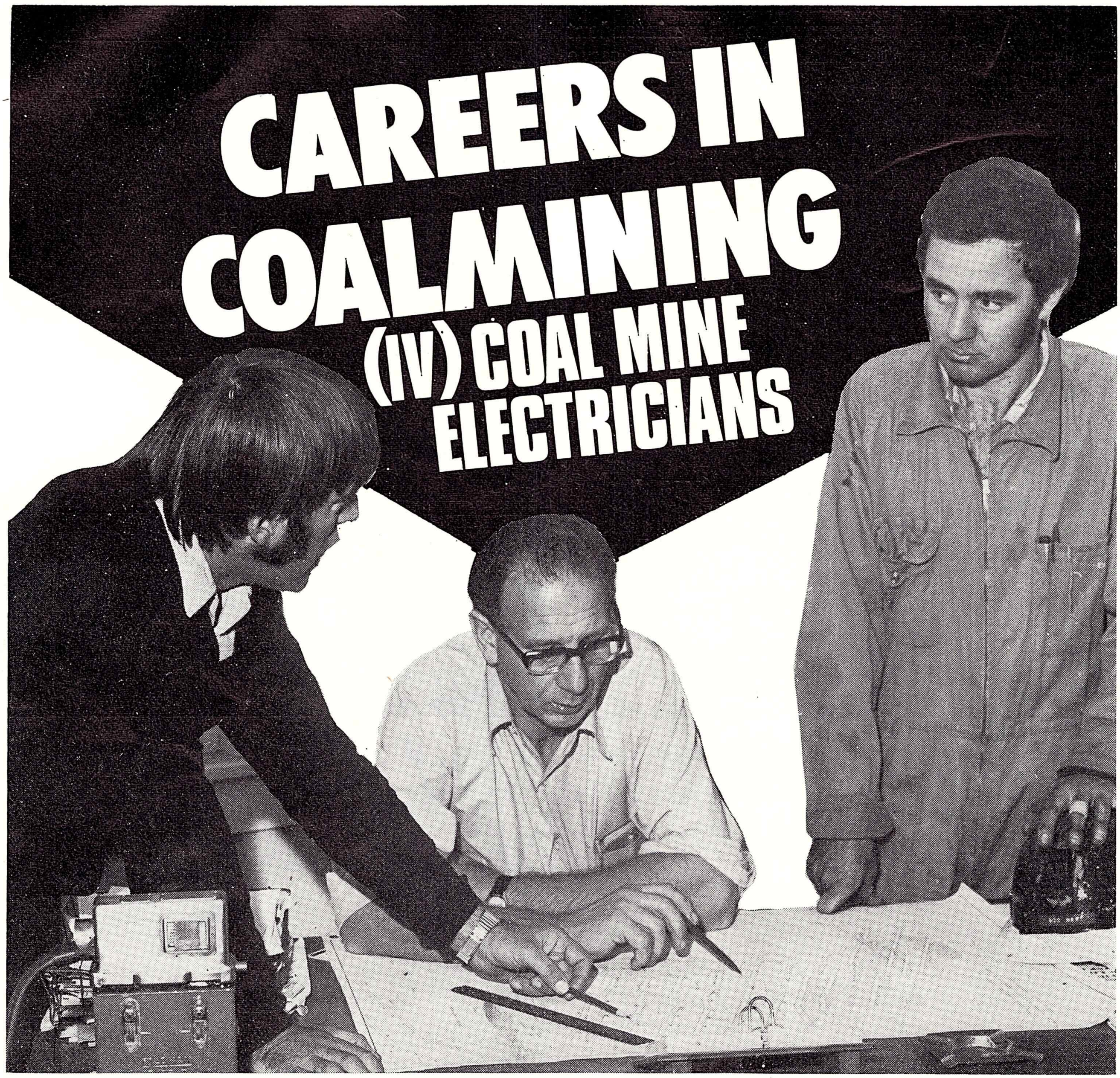
OVER 60 AUTHORISED VISOR DEALERS THROUGHOUT NEW ZEALAND AND AUSTRALIA
or send the coupon for illustrated literature

VISOR FIREPLACES
Please send illustrated literature on ......model VISOR
NAME ....
ADDRESS ....
....

VISOR FIRE PLACES LTD., 7 DRURY ST. NEW LYNN, AUCKLAND 7. P.O. BOX 15-126, NEW LYNN. VISOR FIREPLACES (S.I.) LTD., 6 RESTELL ST. PAPANUI, CHRISTCHURCH 5. P.O. BOX 5087, PAPANUI

CAREERS IN COALMINING

(IV) COAL MINE ELECTRICIANS



Electricians are part of the team of technical experts needed in modern coal extraction. The manager of a mechanised coal mine in the Waikato (seated) consults his electrical experts to help in the running of the mine.

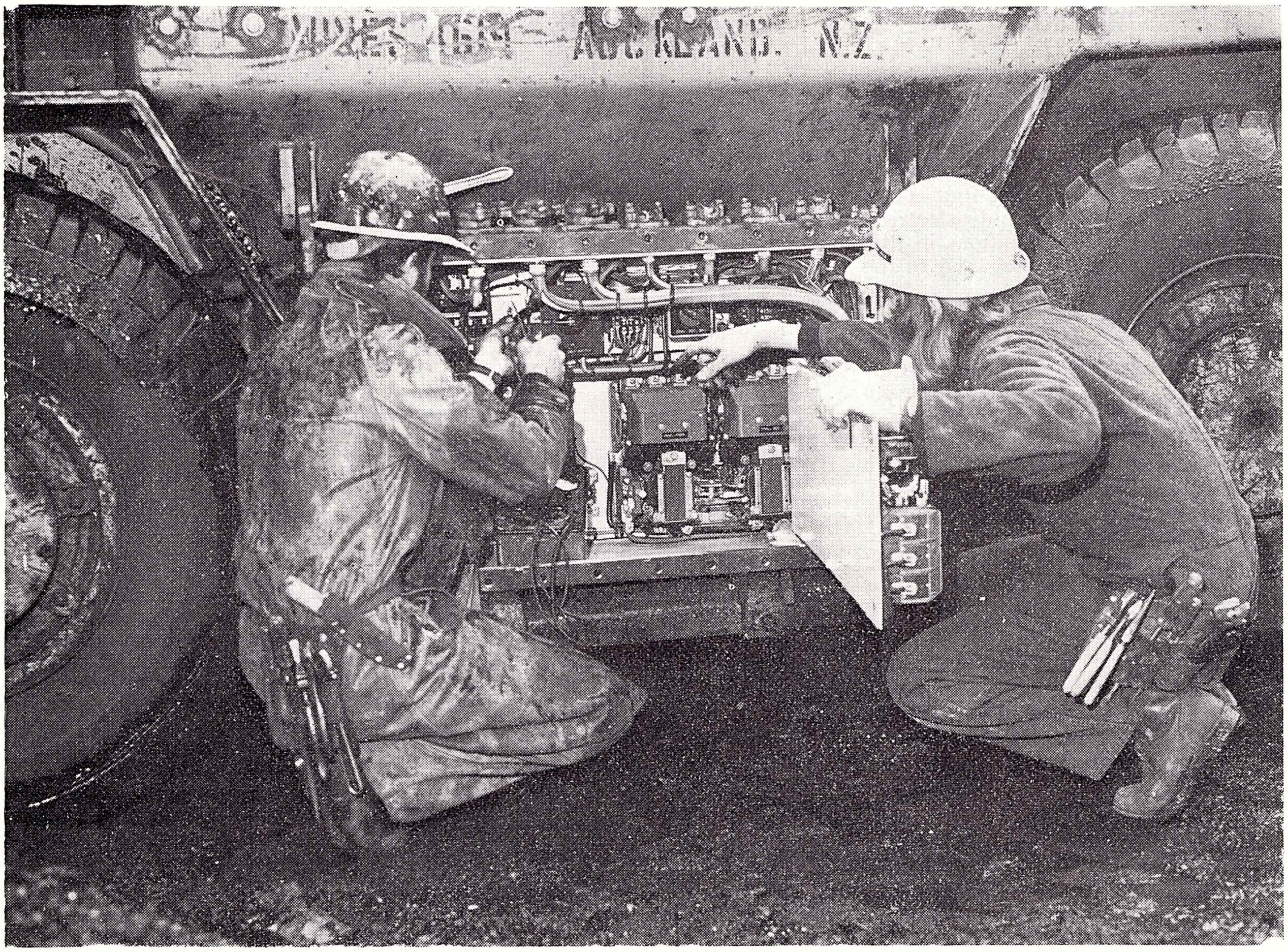
Mines electricians are unique in the electrical industry because they are subject to two sets of requirements: they are bound by the Coal Mine Electrical Regulations for much of their work as well as the wiring regulations applying to other industries.

Also, mines electrical apprentices are not governed by the Apprentices' Act but are provided for under a special clause in the Coal Mines Act. While apprenticed they are not members of State Coal Mines staff. Instead they are members of the miners' or engine-drivers' unions, earning higher pay than electrical apprentices in other industries. If working underground three or more days in a week, they qualify for shares in the miners' production that week.

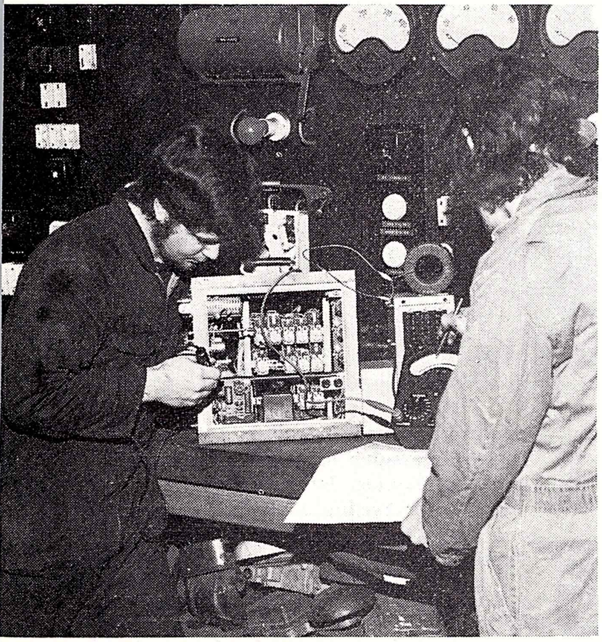
On completing their apprenticeships and passing their qualifying examinations, however, mines electricians hold the same qualifications as electricians who qualified in other industries. They can set up in business on their own, go to sea or take any other position consistent with their length of experience. But because a mines electrician is very much on his own, without continual supervision, the mines offer job satisfaction for the man who likes independence and responsibility.

OPENINGS

The State Coal Mines employ about 20 electricians at present and as more sophisticated mining machinery is brought into use in New Zealand mines the openings for qualified tradesmen will increase. Both the



A shuttle car used in the new mechanised mining equipment is electrically powered. It has electrical control equipment which adds to the extent and increases the technological content of modern coal mining.

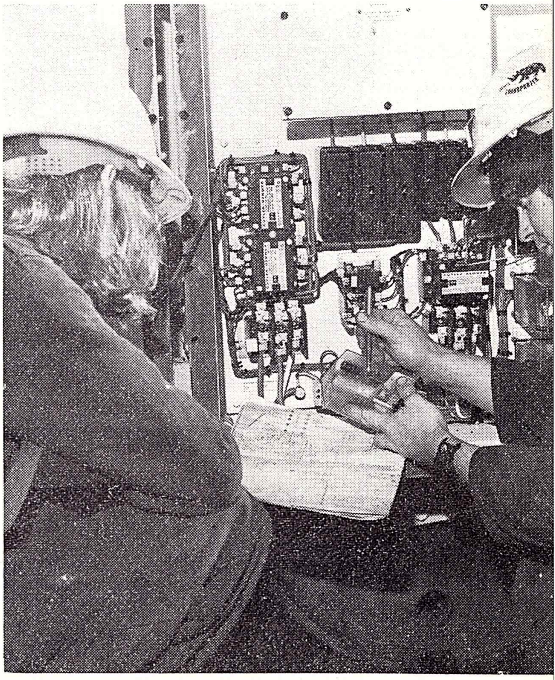


Increasing sophistication in mining equipment requires more electrical control, increasing the work of the coal mine electricians.

continuous miner at Huntly, with its electrically-powered ancillary equipment and the electrically-powered Alpine Miner at Ohai are forerunners of the trend in New Zealand mining which is following that overseas: the accent on winning more coal per man.

This accent on higher and more economic production inevitably creates opportunities for electricians along with other tradesmen. While the State Coal Mines cannot automatically guarantee a position for every apprentice who qualifies, there is usually no difficulty in placing a good man.

Because much of a coal mine electrician's work is underground, apprentices who can adapt to mining are preferred. Some have been boys who had begun as miners and who wanted to obtain the advantages of a trade qualification. Others have been the sons of miners, brought up in the coal mining atmosphere, who wanted trade qualifications while continuing to live at home in a small mining community.



A new feeder-breaker machine receives regular maintenance.

CAREERS IN COAL MINING

(Continued from page 37)

QUALIFICATION

An electrical apprentice needs 9000 hours experience to qualify: a period which takes about four-and-a-half years. He has to study electrical theory and pass examinations in that subject, in practical work and in the wiring regulations.

Once he has the full electrical licence that is essential for appointment as a tradesman, he can study for advanced trade certificates in subjects such as industrial electronics and heavy industrial installations. He can study for the N.Z. Certificate in Engineering, which will lead to qualifying as a Registered Engineering Associate. Candidates for NZCE who rate high marks in the examination may be exempted for two of the four years necessary for a Bachelor of Engineering degree — which leads to qualification as a registered engineer.

A Maori lad who wants to become an electrician may qualify for the special one year pre-apprenticeship courses at Auckland and Hamilton for Maori youths, particularly if he is from a country area. The courses count for part of the apprenticeship time.

CORRESPONDENCE

An aprentice remote from one of the approved technical institutes can study by correspondence, by enrolling with the Technical Correspondence Institute (TCI). Block courses lasting a week or two at a technical institute provide classroom and laboratory instruction to round off the correspondence tuition.

The experience of the State Coal Mines is that study through the TCI has been successful for most apprentices, particularly for any boy keen enough to keep at his studies and when the atmosphere in his home encourages study.

Coal mine electrical work is often concerned with high voltage service to working areas, because of long distances which at lower voltage would cause voltage drop problems. Step-down equipment at the working area reduces the supply voltage to working values. In gassy mines, the techniques of flame-proofing are the main concern in the electrical engineering.

Because a mine manager, by statute, is ultimately responsible for all safety in the mine, the mine manager's qualification requires some knowledge of electricity. However, in practice the manager must rely on the more specialised knowledge of his electrician in electrical engineering and equipment and a mines electrician has special responsibilities for the safety of the equipment he sets up and maintains.

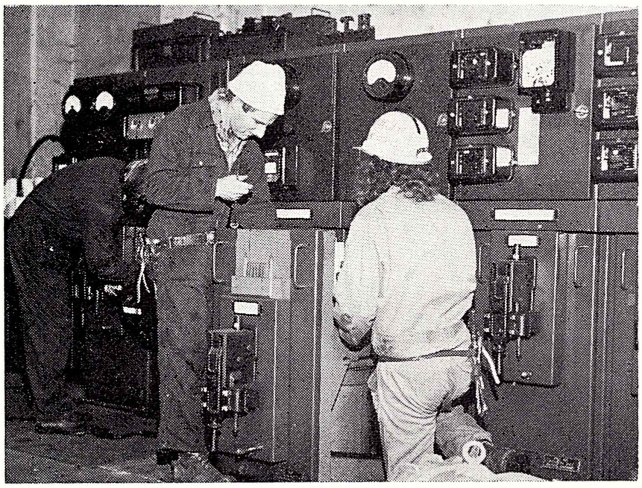
House wiring experience is necessary for an electrician during his training. Because most mines have houses or offices attached the apprentice can get his share of this type of work. Where there have not been opportunities for an apprentice to have house wiring experience, the department has usually arranged for local power boards to give apprentices this part of their training.

Electrical equipment used in coal mines is comparatively massive to ensure an extra safety factor. Therefore, mines electricians have to be fit for the occasional heavy work they have to do.

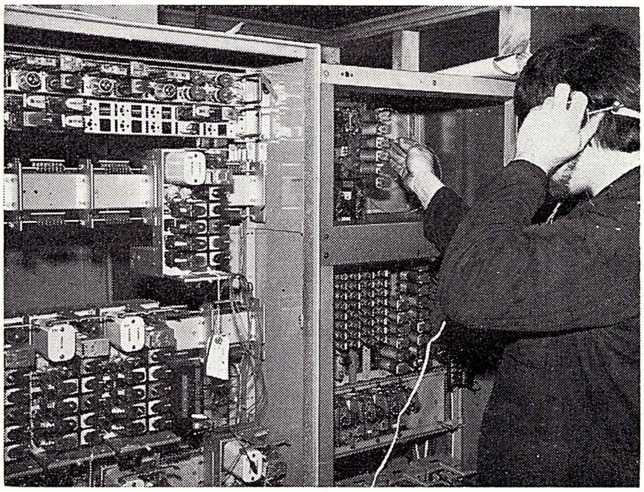
A mines electrician is usually on his own, unlike other industries where he may be part of a team and subject to continual supervision. He has the challenge of solving his own problems and of learning to rely on his own skills and knowledge, while qualifying for a trade which can lead to other fields if he wishes.

In particular, he has qualified in a trade which is expanding and becoming more complex: a trade assured of a future.

Coal mines use considerable amounts of electricity. Therefore, a mine needs sub-station equipment and electricians to maintain it.



Variety is a part of a mine electrician's work: a mine electrician checks a mine's telephone exchange.



The Clean Air Act 1972

The Health Department says that, under Section 23 of the Clean Air Act 1972, scheduled processes carried on in any premises from April 1 of this year must be licensed.

The Clean Air (Licensing) Regulations, which came into force on December 26. lay down the form of application for licensing and what information is needed, and the fees. Applications should be made to the territorial local body as soon as possible.

The Clean Air Act (Section 31) also provides for the licensing authority to approve processes before they are established, or existing processes are changed in some respects. Forms of application and fees for Section 31 licensing are set out in the Clean Air (Licensing) Regulations.

The department says that in any cases of doubt about licensing existing processes or applications, the local authority health inspector or the department's district officers in the area can provide information.

POST OFFICE SERVICES GROW WITH REEFTON'S COAL COMMUNITY

REEFTON POST OFFICE
10·15 A.M.
5 AUG
1974
N.Z.

By Gillian E. M. Shadbolt,
N.Z.P.O. Public Relations Division.

Coal has been burning in the Reefton Post Office since it moved from its gold-rush tent to more orthodox premises in R. Oxley's newly built store in the town's first street.
Today it still provides heating for the staff of the modern Post Office that opened its doors in 1972.

The modern Post Office at Reefton which opened its doors in 1972.

POST OFFICE SERVICES

(Continued from page 39)

It seems unlikely that the gold miners whom the Post Office served in those earliest days, would have had much use for Reefton's black gold other than for cooking.

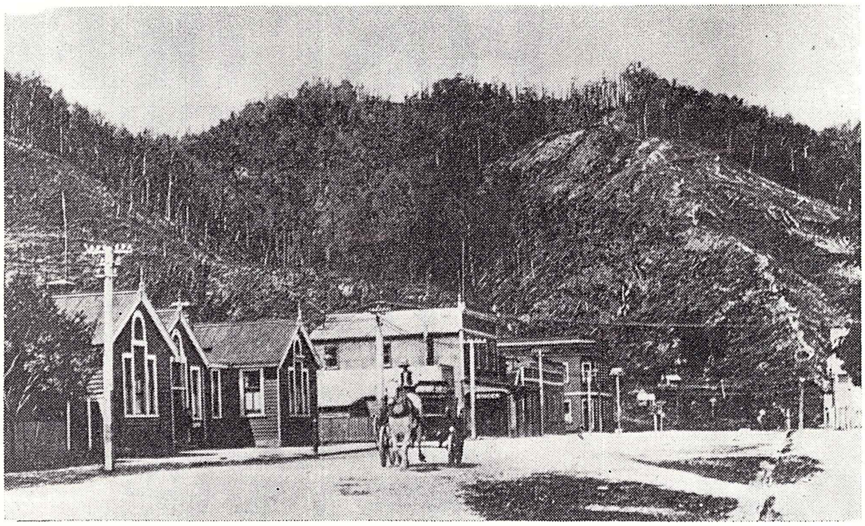
And, in those tumultuous times, when news of a new gold strike meant the sudden movement of hundreds of people, the Post Office daily performed miracles from transient tents as they searched for, and often discovered, itinerant miners to whom mail had been addressed.

The gold miners' invasion came and went. Then the Post Office, settled in their own, permanent, premises built in 1872, began meeting the needs of a different and growing clientele.

These were the men who came with their families to settle, some to farm but most to mine the coal, discovered, before gold, by a surveyor, Thomas Brunner — the first European to enter the area.

Mails for both gold and coal miners at Reefton, first came up the Buller River by boat from Westport to Inangahua Junction and, from there, through the bush on horseback.

Greymouth is head office for Reefton.



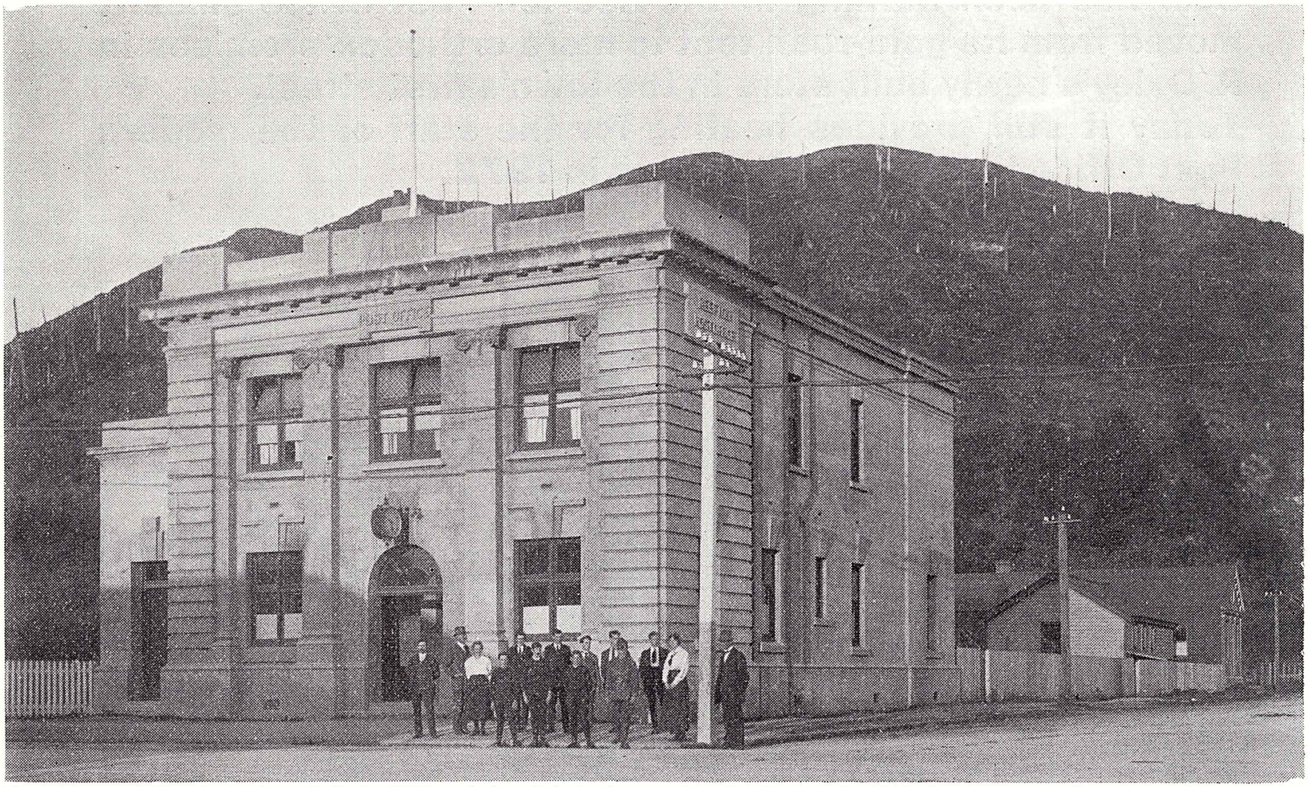
Bridge Street, Reefton, with the Post Office building erected in 1872 on the site of the later building, on the left. The two-storied building with the sign "Singer" was Woolhouse's drapery and grocery shop when the photograph was taken in 1914. It later became the Dominion boarding house, and the Reefton Workingmen's Club now occupies the site. The far building is the Exchange Hotel, where the public conveniences are now sited. The little huts in the distance are across the other side of the Inangahua River near where Holmes' Creek flows out.

The first mail coach from Greymouth to Reefton took 11 hours to complete the journey at 8 p.m. on January 3, 1873.

The road was incomplete and the coach had to be carried by boat for five or six hundred yards.

In a matter of months, however, mail coaches were operating a scheduled service, arriving nine hours after the mail closed at Greymouth and also in the reverse direction on a twice weekly basis.

(concluded on page 41)



The old Post Office in Reefton, built in 1915 and demolished after earthquake damage in 1968. Stan Baxter, colliery clerk for the Mines Department at Reefton, worked at the Post Office in 1938 as a telegraph messenger boy before transferring to a clerical position with the Ministry of Works at Nelson: "It was a busy place in those days," he writes. "Most of the dispatches for the two town newspapers, the 'Inangahua Times' and the 'Inangahua Herald' came through the telegraph by morse code." The other building on the right is the School of Mines.

WINTON WINTER DEFIED

(Concluded from page 28)

large living room in each has a divan for extra sleeping accommodation.

Television is supplied, plus the usual amenities of refrigerator, and cooking facilities and crockery and cutlery.

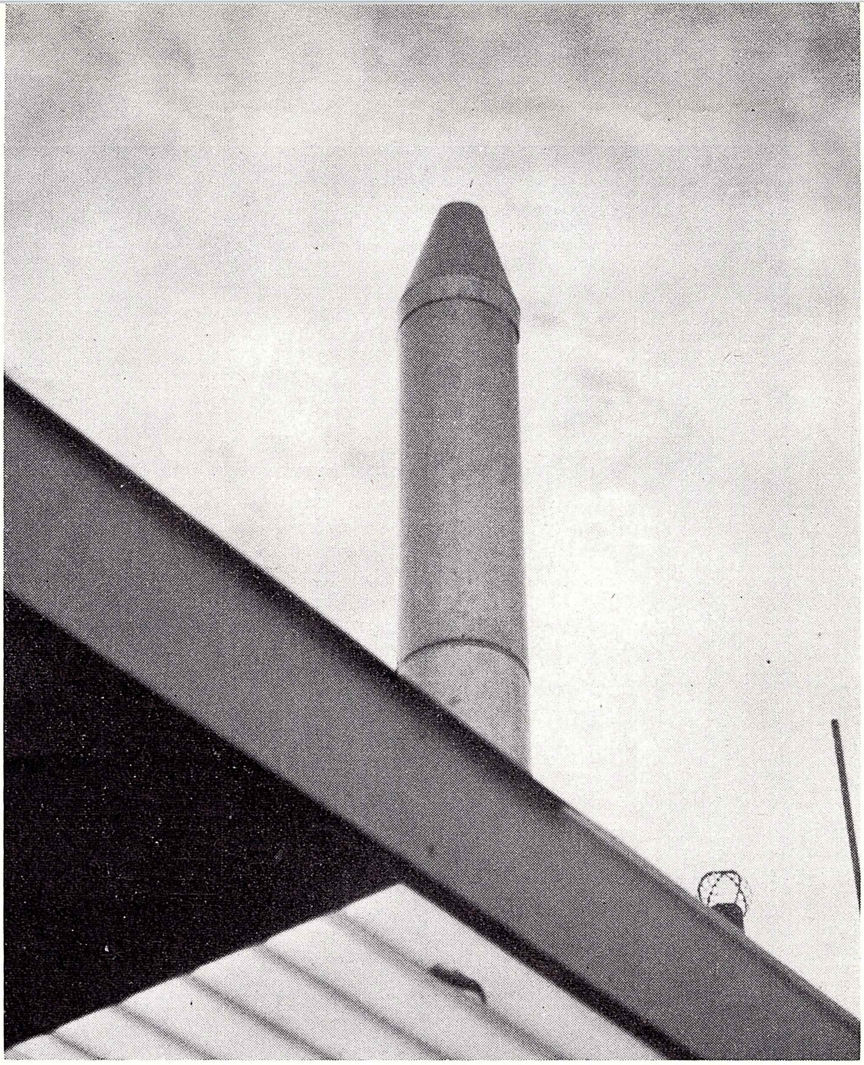
A small swimming pool is being planned — provided with coal-fired heat, of course. Also on the drawing board are plans for swings and other children's amenities. An automatic clothes washer is available for guests' use — with plenty of hot, coal-heated water available.

"There's a special welcome for coal people," says Mr Spruyt, looking forward to showing coal miners, merchants and others in the industry what modern coal firing can achieve for a comfortable holiday or overnight stay.

"We'll also give a special welcome to electricity, oil and gas industry people — to show them what coal can do," he adds.

A telephone call to 230, Winton, or a letter to Paramount Motel, 346 Great North Road, Winton (the main street) will reserve accommodation for anyone wanting to test the effectiveness of Mr Spruyt's claim to provide maximum comfort with coal.

Like a comment from the visitors' books: "Oh, so cold outside — so warm inside!"



Fuel costs are less than $1.00 per day.

POST OFFICE SERVICES

(Continued from page 40)

The telegraph service was established in Reefton early in 1872 but it was not facilitated by the construction of the road following a route beside the wire.

It seemed to the linemen concerned that an unduly large proportion of the trees cut down by construction gangs fell across the line, severing the connection.

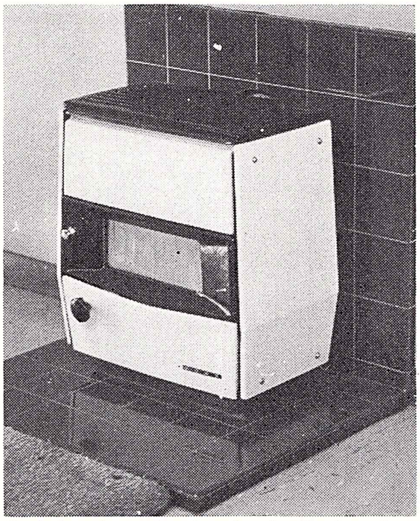
Money order and savings bank facilities were established at the Reefton Post Office in 1872, and in 1887 the Post Office, along with everyone else in the town, benefited from the introduction of New Zealand's first hydro-electric scheme.

The railway line, laid in the 1870's from Greymouth to Brunner Coalfield, was extended in 1894 to Reefton and in 1903 a telephone exchange was opened.

This exchange changed to automatic service on July 7, 1970.

Reefton's second permanent Post Office was built in 1915 and heated with open coal fires. The latest in central heating — still coal-fired — was installed in the building in 1964.

It was renovated and modernised in 1957 but, badly damaged in the earthquake of 1968, the Post Office was demolished shortly afterwards.



Coal has been burning in the Reefton Post Office since it moved from its gold-rush tent to more orthodox premises.

The new Post Office opened its doors for business in February 1972.

Its mailroom and staff areas are heated by a coalfired heater, still one of the most economical and efficient means of heating, using only about three tons a year.

Today Reefton Post Office handles 138,698 postal articles annually. It caters for 471 telephone subscribers, forwards 1840 telegrams and receives 2500 telegrams on behalf of local residents.

In addition, Reefton Post Office Savings Bank holds 1652 savings bank accounts worth $535,756.

As an agent of the Department of Social Welfare, it also caters for beneficiaries and pays out 600 benefits worth $40,000 monthly.

Acting for the State Advances Corporation the Post Office collects about $1450 in rents each month.

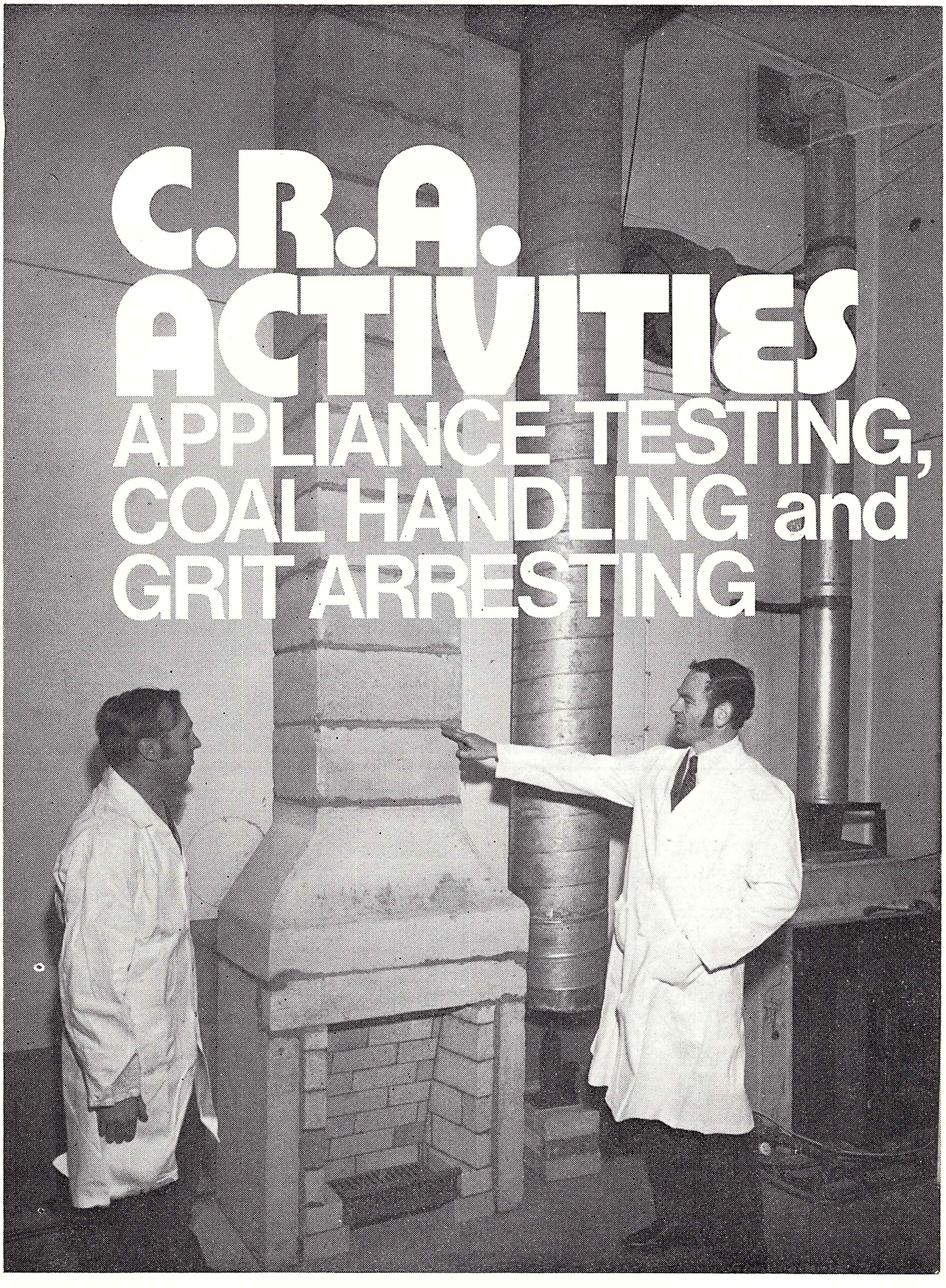
Increasing national demand for coal has meant a revival of the town's employment potential in its oldest and most lasting industry.

As well as this, forestry development is bringing new vitality to the area.

And, in Reefton's Post Office, there's new enthusiasm for the future — a future full of the promise of a new age of employment potential, rising land values and thriving industry.

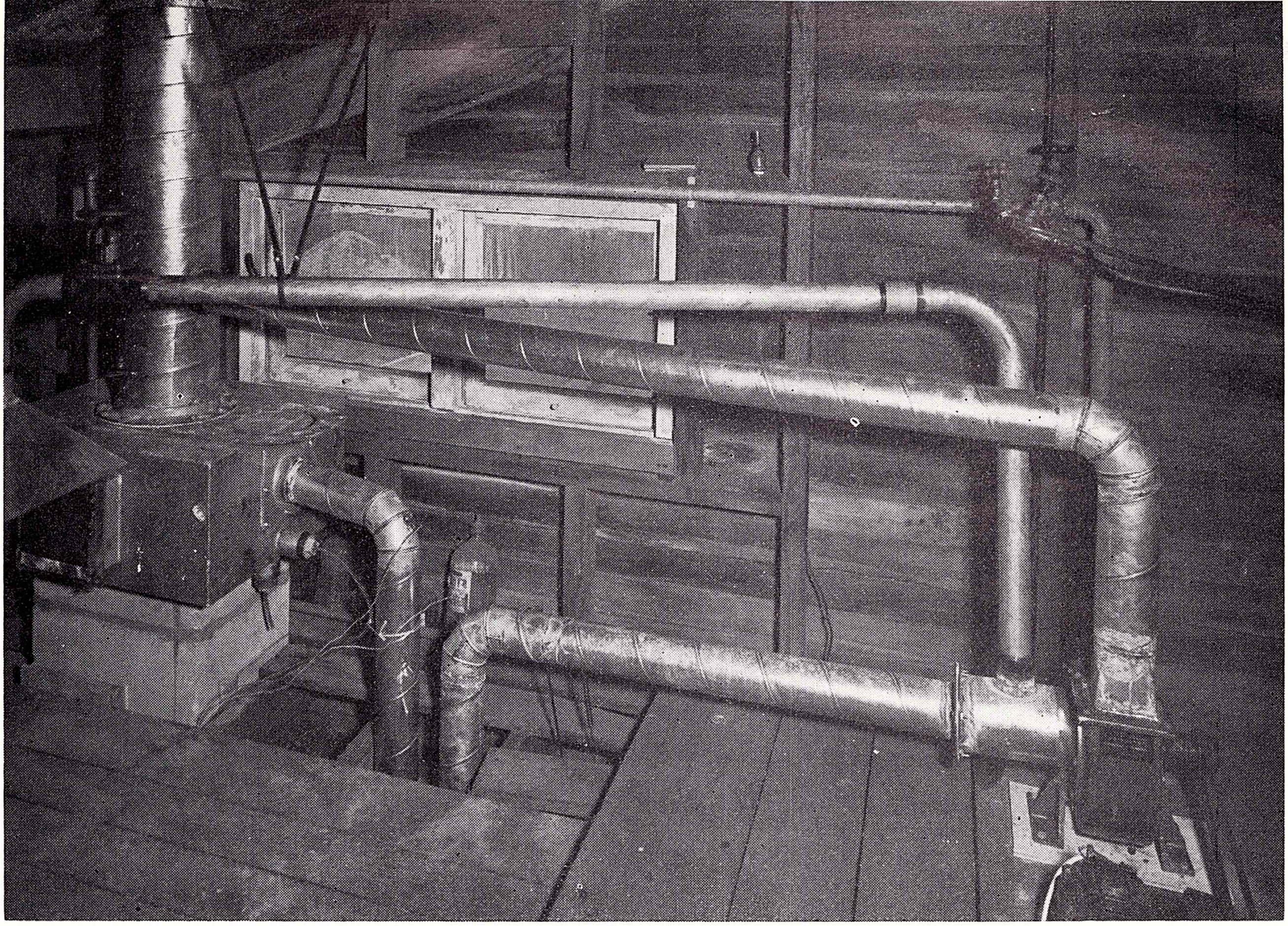
C.R.A. ACTIVITIES

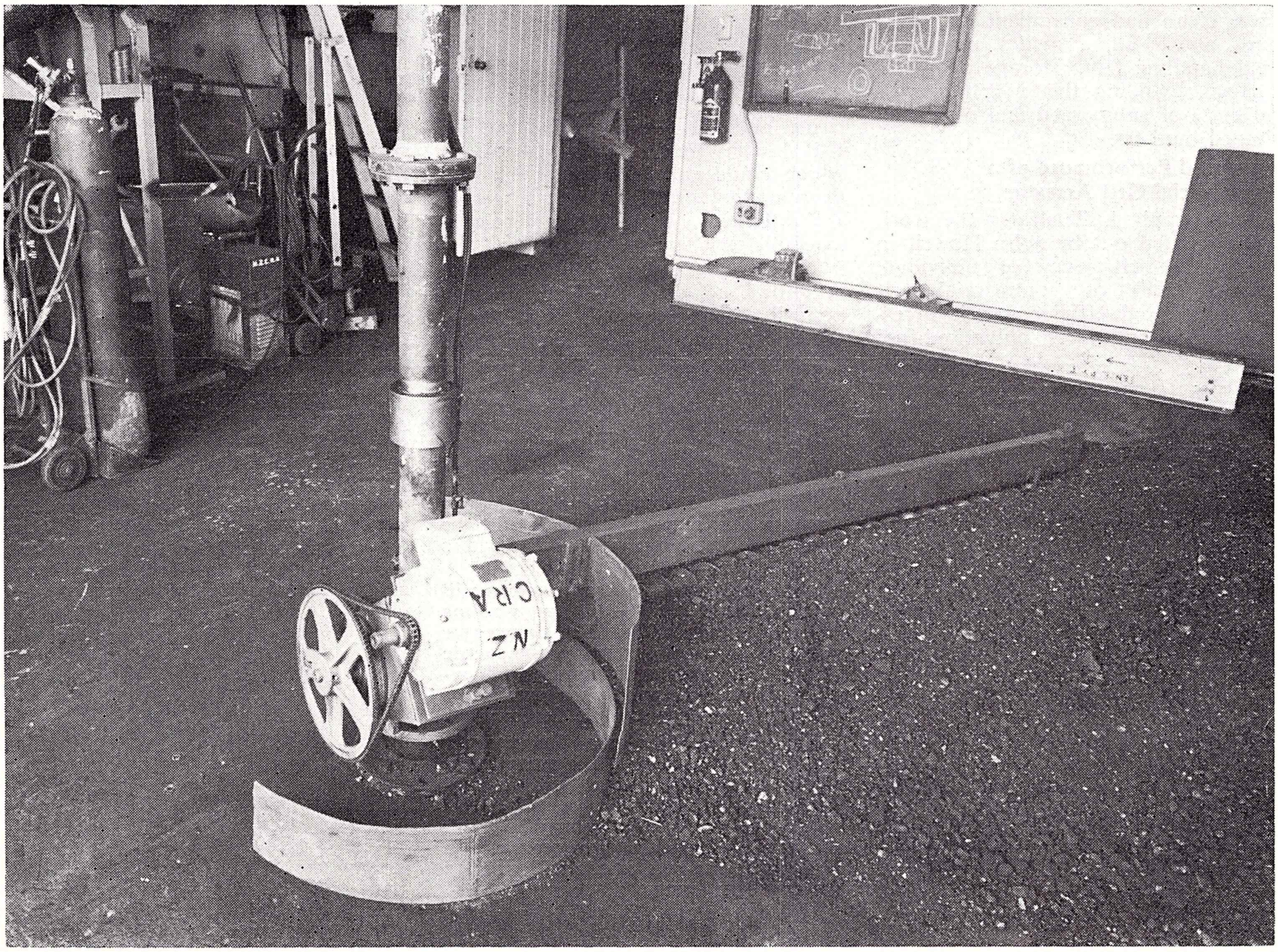
APPLIANCE TESTING, COAL HANDLING and GRIT ARRESTING



Testing of Domestic Appliances

The Coal Research Association has undertaken to carry out tests on domestic appliances for the Clean Air Council which is concerned with the acceptability of coal-fired appliances in respect to air pollution.




C.R.A
N.Z

Smoke emission from all space heaters will be measured and first an open fire will be tested. Then space heaters will be installed in the same chimney place.

Photograph 1. shows Dennis Shannon and Dave Welsh inspecting the open fireplace and chimney.

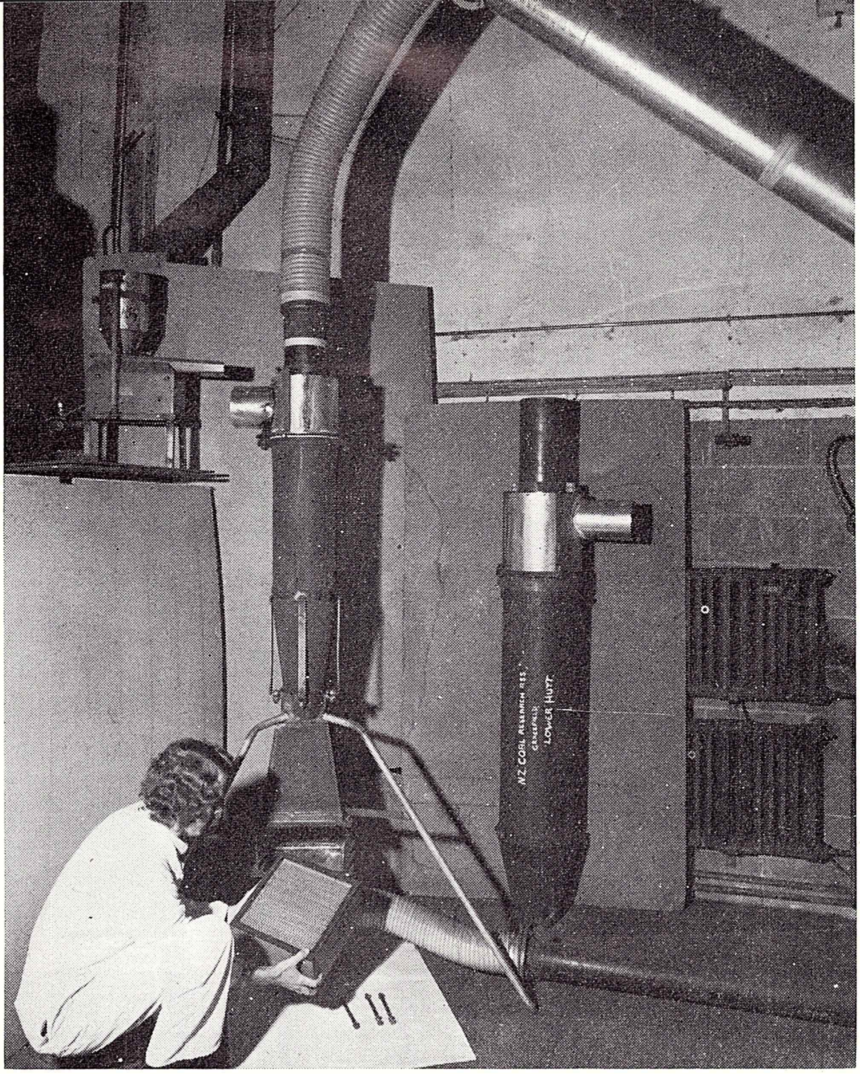
Number 2. shows the floor above, and the arrangements for withdrawing the flue gases from the chimney. A fan pulls them through a bag filter and returns them to the chimney. The bag filter is enclosed in a vertical steel tube shown behind Dennis Shannon's arm in the first photograph. The filter bag is weighed before and after the test and the increase in weight represents the quantity of particulate matter which would have passed to the atmosphere.

Coal Handling

Bill Llewellyn and Mike Adamczyk are putting a lot of effort into the introduction of traversing screws for moving coal in a flat-bottom bunker. Their latest development uses a traversing screw to feed a pneumatic handling system, as shown in photograph 3. The screw swivels around into the heap of coal pulling the coal along to the pick-up point of the 3-inch pipe in which the coal can be carried away to a remote boiler house. This simple system gives clean and convenient operation and, above all, provides automatic coal handling from storage on a flat surface, avoiding the crippling capital costs of submerged and overhead, shaped bunkers.

Improved Performance of a Commercial Grit Arrestor

Photograph 4. illustrates the work being carried out by John Howell in testing the efficiency of individual cyclone cells of commercial grit arrestors. High-efficiency grit arrestors are essential for pulverised-fuel firing and the work carried out by C.R.A. has suggested modifications which could substantially reduce the dust loading of the flue gases from P.F. boilers using commercially-available grit arrestors.



The test equipment in photograph 4. shows a vibratory feeder which controls the feeding of fly ash into the cyclone, as the air is pulled through by a high-pressure fan. The clean gas passes upwards while the dust is retained in a high-efficiency air filter below the cyclone, through which a small stream of air from the bottom of the cell is drawn. The increase in weight of the filter box during the test shows the proportion of inlet dust that has been collected by the cell.

A NEW LOOK FOR COAL MINING

(Continued from page 18)

the rate of one tonne per minute as originally specified by the manufacturers."

Best output to date has been 70 tonnes in a single shift but with improvements in the system of coal transport behind the machine this could be at least doubled, and very probably increased to as much as 200 tonnes with a properly installed conveyor system all the way out of the mine to the surface.

Originally it was intended to operate the machine in a stone drive at present being driven to extend the Morley workings through a downthrow fault into a new area of virgin coal.

METRICS . . . for John and Jane Citizen

What is a kilopascal? How many grams make a pound? What is the difference between a millimetre and a kilometre?

These and many similar questions will concern all of us — in our working life, in our private life. The changeover from the Imperial system to the metric system of weights and measures will require all of us to re-think a number of things which we now take for granted.

Many commodities, meat for example, will be sold by the kilogram; most liquids (petrol being one) will be sold by the litre; the carpenter will select his timber sizes in millimetres; the truck driver will check his tyre pressures in kilopascals; the coal miner will measure his output in tonnes.

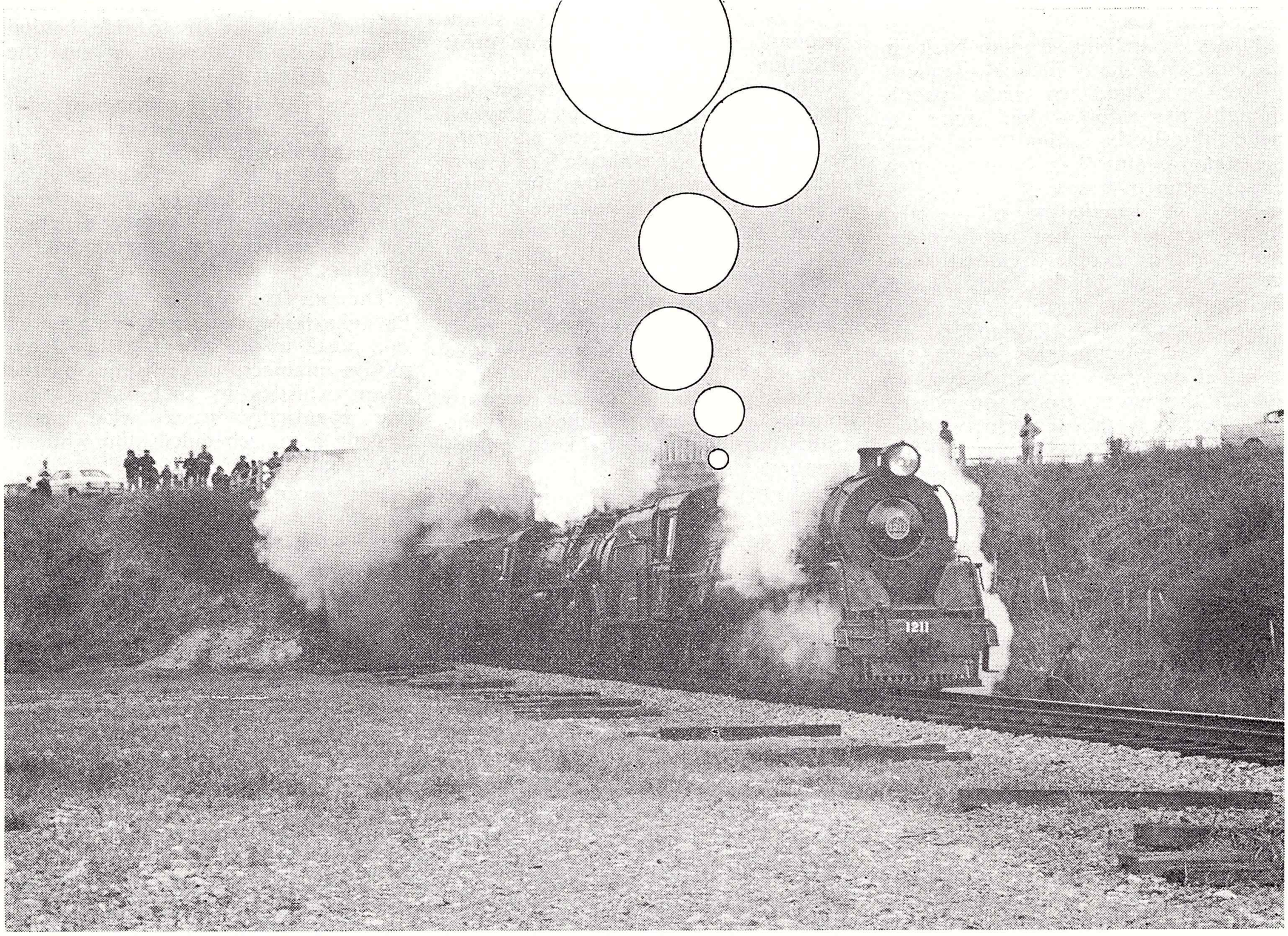
A recent publication by the Industrial Training Service of the Department of Labour will prove valuable to people who come into contact with the metric ssytem. And that means all of us.

The booklet — "Metrics: For John and Jane Citizen" — is available from Government Bookshops at Auckland, Hamilton, Wellington and Christchurch at 45c per copy (including postage).

☆ ☆ ☆

WEAR YOUR HELMET !

STEAM ON THE MAIN LINE



People gathered at bridges and other vantage points to watch coal-fired steam in action on the main line when two J-class locomotives hauled an enthusiasts' special from Wellington to Palmerston North.

The Steam Locomotive . . .
It's a fuel technologist's nightmare.
Badly handled, it creates more than its share
of smoky pollution.
But, with all its faults, all boys, and their dads,
still love a steam locomotive.

By Peter Hodge

STEAM ON THE MAIN LINE

(Continued from page 45)

This was proved on Sunday, May 19, when more than 1000 people rode behind two J class engines from Wellington to Palmerston North and back to Paekakariki, and thousands more turned out along the line to watch and wave and take photographs.

J class Nos 1211 and 1234 were on their way to Paekakariki, where Steam Incorporated, a group of enthusiasts, are making a home for big locomotives, the types that ruled the main lines only 20 or 30 years ago.

Their journey to a new home was made a gala occasion. Instead of towing them quietly in a goods train it was decided to give these two iron horses a decent gallop on the main line.

And why not?

Steam is making a comeback in the hearts of many New Zealanders.

Not so long ago most people thought the railways had done the right thing by banishing those "dirty old steam engines" in favour of new diesels from overseas.

But that was before oil — also from overseas — shot up in price. And before people realised how much noise and black fumes a diesel locomotive sends forth.

Now some New Zealanders are having second thoughts about the so-called diesel revolution. Maybe we got on the wrong track somewhere.

To be fair to the steam locomotive: the decision to go diesel was justified by comparing steam engines designed in the 1930s — with pre-war technology — with diesels designed in the 1950s.

To be fair to the diesels: they have helped our railways carry more traffic more economically than the steam locomotives they replaced.

But it's becoming clearer all the time that railways with heavy traffic should be electrified with cheap, clean power generated in New Zealand. That was obvious in the early 1950s before we took the wrong track and changed to diesels. Recent events have only emphasised it.

And it can be argued that on lines with light traffic modern steam locomotives burning coal mined in New Zealand would be the best proposition.

But that's all wishful thinking. Our railways have changed to diesel power. There are still chances for electric power to be used where it serves best. The lessons must be put down to experience.

Nowadays, steam locomotives are museum pieces in New Zealand. They survive as stationary exhibits or on short vintage railways. The Railways runs a highly-successful old-time train — the Kingston Flyer — each holiday season. And at Paekakariki Steam Incorporated has built a working reproduction of an engine shed in the heyday of steam.

A special train left Wellington at 8.30 a.m. on Sunday, 19 May. Because of smoke problems in the tunnels through which the Main Trunk line climbs, an electric locomotive hauled the two steam locomotives, J1211 and J1234, and 20 carriages as far as Porirua. A leading railway historian suggested that it was probably the longest passenger train ever to leave Wellington.

After the electric locomotive made its exit, the two locomotives took off in full cry with all the usual sound, sight, smell and feel of coal-fired steam in action.

Already it was clear that the steam locomotives were the centre of great attention.

The thousand enthusiasts on the train were matched by as many on the lineside with cameras and tape recorders. A cavalcade of cars enabled many to follow the train, although the two locomotives did not waste any time and often outdistanced the pursuit.

Besides the faithful, thousands of people gathered at bridges and other vantage points to watch the train go by. J1211 and J1234 seemed to have more fans than a pop star.

For a good deal of the outward journey a light aircraft shadowed the train, possibly hired by keen photographers.

Also in attendance was a helicopter with an NZBC television camera crew.

There were few stops on the way. Some time was spent at Otaki where a passenger train for Palmerston North overtook the special. Here, also, water for the steam locomotives' tenders was pumped from a dairy factory by the local fire brigade. Facilities for steam locomotives have been removed from the Manawatu line.

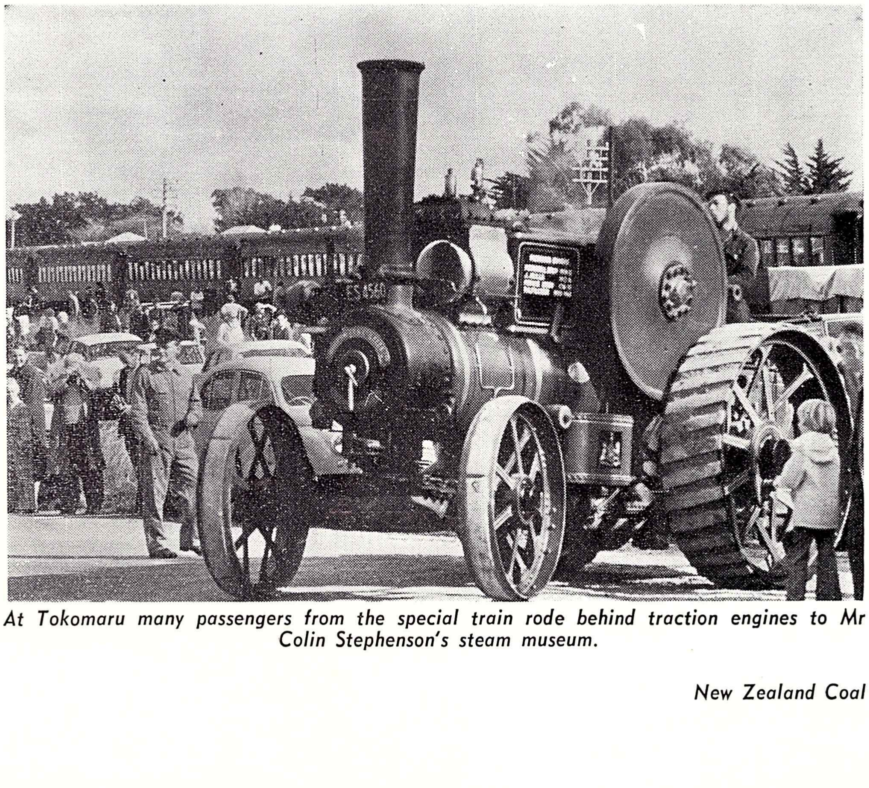
Several times the train halted by arrangement for the more agile photographers to take position. Then the locomotives swept past to the sound of clicking shutters.

At Tokomaru two steam traction engines from Mr Colin Stephenson's steam museum were waiting at the lineside. Many passengers left the train there and walked or rode behind the traction engines to the museum to see the stationary steam engines on show or to ride behind a small tank locomotive on the private railway.

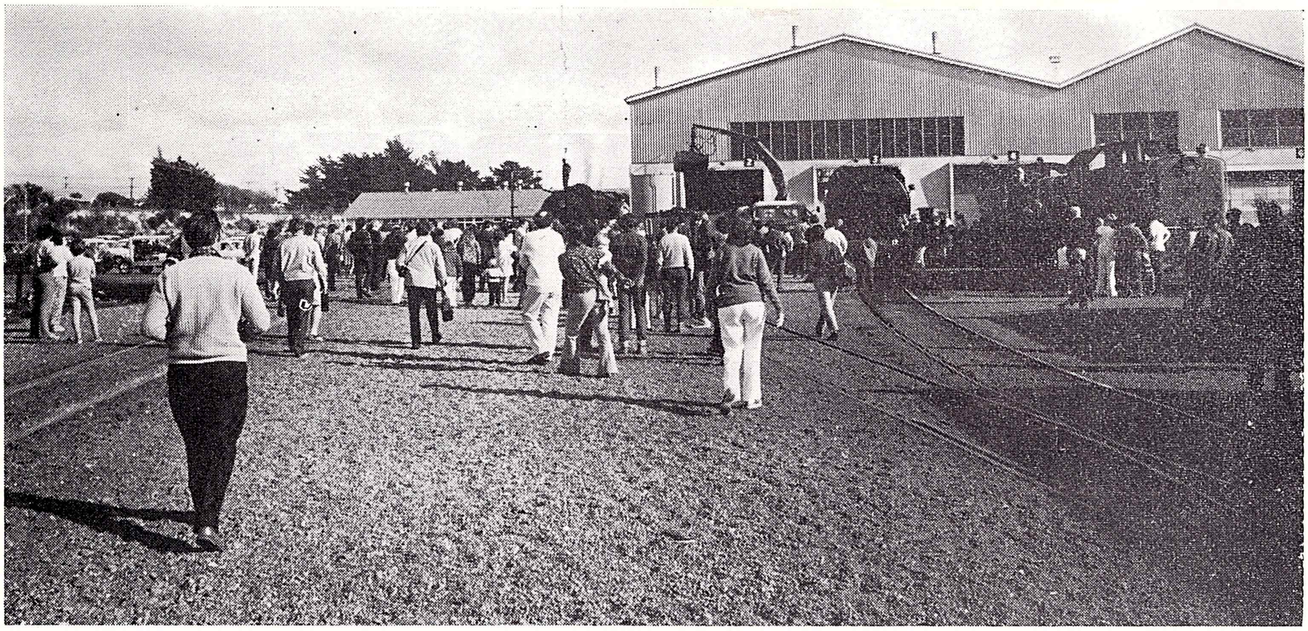
A good few people remained with the special train, however, while it went to Palmsterton North for J1211 and J1234 to be turned and serviced for the return journey. Even there, in precincts of the locomotive depot, the locomotives were surrounded by admirers.

The run from Palmerston North to Paekakariki was as spectacular as the ride north in the morning. The locomotive engineers played tunes on the steam whistles to such effect that one eventually stuck wide open, causing an unscheduled stop while it was fixed.

Not even the weather, which worsened as Wellington drew nearer, could spoil the afternoon. It was an



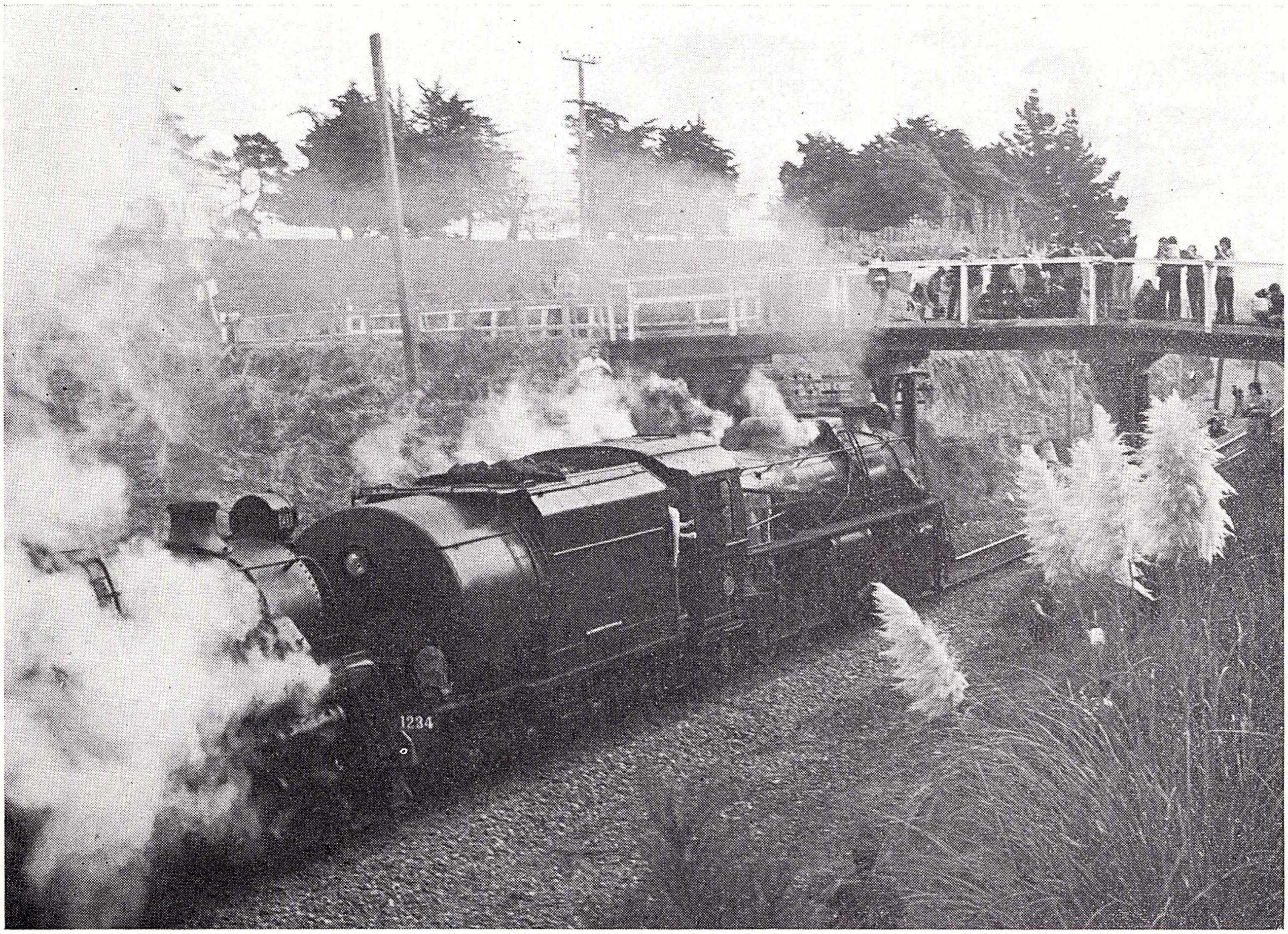
At Tokomaru many passengers from the special train rode behind traction engines to Mr Colin Stephenson's steam museum.



Even in the precincts of Palmerston North locomotive depot the two steam engines were surrounded by admirers.

anticlimax when J1211 and J1234 finally came off the train at Paekakariki and were tucked away in their new shed.

There is clearly a large and growing interest in steam. Let's hope that the special trains on 19 May 1974 will not be the last chance to experience at first hand the sight, sound, smell and feel of coal-fired steam on the main line.



J-class Nos 1211 and 1234, two of the steam locomotives that ruled the main railway lines in New Zealand 20 or 30 years ago, have found a home at Steam Incorporated's working museum at Paekakariki, near Wellington.

NEW COURSES FOR COAL MINE CERTIFICATES

New coal mining courses are being prepared by the Technical Correspondence Institute (TCI) for deputies and underviewers.

Mr T. M. Brazil
Inspectorate

Mr E. I. Jones
TCI

Mr W. Partel
Mines

"The structure and content of all new coal mining courses are drawn up after full discussion and agreement among the Inspectorate, the Mines Department and the TCI."

"The assignments will be of great value to junior officials in obtaining certificates," says Mr T. M. Brazil, who, as Chief Inspector of Coal Mines, is chairman of the Board of Examiners for coal mine certificates.

"Previously the Technical Correspondence Institute provided courses only for mine managers and the senior exams," he says. "These assignments will cater for deputies, and the TCI is working towards producing assignments for underviewers for the 1975 exams."

NEW COURSES FOR COAL MINE CERTIFICATES

(Continued from page 48)

Mr Brazil says that the steps taken by the TCI in providing the courses will fill a much-needed gap since the closing of the local schools of mines in mining districts.

"The local contact was ideal," he says of the services of the former schools. "The TCI recognises the value of personal contact and apart from running block courses for senior students is willing to cooperate in the field for junior certificates.

"The new assignments are also very good material for those starting off with the intention of getting a manager's certificate."

Stages

The complete course will be arranged in three stages:

Stage I Mine Deputies
Stage II Mine Underviewers
Stage III Mine Managers

The courses will be self-contained, eliminating any need for students to buy expensive textbooks. Suitable relevant books will be listed for further reading, however.

New students will begin studying at Stage I, and will progress through to higher stages only after passing the external examinations. Students with previous good passes in certain subjects such as University Entrance mathematics or physics (or equivalent) may be exempted from some subjects in earlier stages of the course in special circumstances.

All mining examiners will be provided with complete sets of the assignments covering their respective subjects so that all questions set in future examinations will be based on the work covered in course assignments.

Agreement

"The structure and content of all new coal mining courses are drawn up after full discussion and agreement among the Inspectorate, the Mines Department and the TCI," says Mr E. I. Jones, Mining Courses Supervisor of the TCI.

Mr Brazil represented the inspectorate, Mr W. Partel the Mines Department, and Mr Jones the TCI in the discussions.

"The new courses are in metric units which means they are meeting current trends and requirements," Mr Jones says.

In the Legislation assignment unnecessary writing by the student has been reduced to a minimum. The test questions in each assignment require the student only to insert the missing words from the Coal Mines Act or the Regulations.

Stage I of the course, consisting of 20 assignments, is now available. The assignments are:

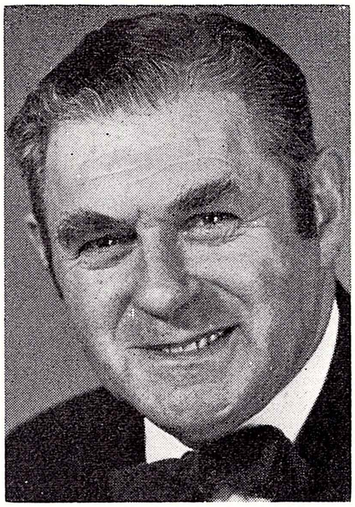
Ventilation, 7 assignments Methods of working and roof support, 3 assignments	Grouped in one subject
Mathematics 6 assignments Legislation 4 assignments	Grouped in one subject

"I think these new assignments are a great idea," says the Assistant Secretary of Mines, Mr G. K. Keown. "I hope it encourages more of our young mining men to come forward to obtain certificates as deputies, underviewers, second class and first class managers.

"These men are badly needed in the industry. Any encouragement we can give, we will, to help them get their certificates as soon as possible."

OBITUARY —

A distinguished geologist, particularly known throughout the coal industry for his interest in coal, Dr R. W. Willett, died at his Wellington home on June 5, aged 61.



Dr R. W. Willett.

"He was a friendly, intelligent person," says the Secretary of Mines, Mr I. D. Dick. "He was always kindly disposed towards the coal industry, and his support was tempered with an intelligent outlook that would not be swayed by unrealistic optimism."

Dr Willett rose through the Geological Survey to the position of Assistant Director-General of the Department of Scientific and Industrial Research, the position he had held from 1967 until his death.

Born in Dunedin in 1912, he was educated at Otago Boys' High and gained a B.Sc. at Otago University. He was one of three cadets appointed to the D.S.I.R. in 1936, and had to spend a year in the field with a pay rate of about $1.20 per week on appointment.

His interest in geology came from Professor Cotton's book "The Geomorphology of New Zealand". He had been introduced to this by a master at Otago Boys' who organised field trips. A love of the outdoor remained with Dr Willett for the rest of his days.

He took an M.Sc. degree at Victoria and became Geologist-in-Charge, Invercargill, and then Geologist-in-Charge, Coal Survey at Wellington 1948-51.

His subsequent rise in administrative positions, as British Commonwealth Geological Liaison Officer, London (1951-54); Senior Geologist (Administrative), N.Z. Geological Survey (1954-56); and Director of the N.Z. Geological Survey (1956-67); should be set against his pioneering work in the field. With another scientist he once spent seven weeks in the unmapped wilds of South Westland, making the first survey of the main Alpine fault in this wet rugged area.

Dr Willett received an honorary doctorate from Otago University, mainly, he believed, for completing the 27-sheet series of the complete geological map of New Zealand by the 30-strong team of the geological survey. Years of hard and intensive team work were completed with a contribution of immense value to the increasing oil and mineral searches now going ahead in New Zealand. The work has been warmly praised by the US Geological Survey, and was the project by which Dr Willett wished to be remembered for his time in charge of the Geological Survey.

Of two books and numerous papers, his paper "Coal", surveying the known deposits of coal in New Zealand is a handy reference to our coal measures.

Dr Willett was on the council of the Royal Society of New Zealand from 1954, a Fellow since 1961, and had just completed a four-year term as president before his death.

He was a member of the executives of nine industrial research associations, his membership of the Coal Research Association being of particular interest to the coal industry.

Dr Willett had been secretary and president of the N.Z. Association of Scientists; president of the Civil Service Club, Wellington; a member of the executive of the International Geologists' Union; secretary of a special committee on Antarctic research. At the time of his death he was a member of these boards: Metric Advisory; Water Resources Council, Inventions Development Authority (chairman, technical committee), Nelson Catchment (chairman, water resources committee) and the Carter Observatory.

Shortly before he died he had led a delegation of five scientists, at the invitation of the Chinese Academy of Sciences, to explore the current state of science in that country.

"He was a good friend and colleague," says Mr G. Brunt, chairman of C.R.A. "He was always sympathetic to the coal industry — we could not afford to lose a man of the calibre of Dr Willett."

DISTRICT NEWS

— GREYMOUTH —

After almost 44½ years with the coal mines, Mr George Todd retired from the Greymouth office of the Mines Department in June.

Senior clerk at the Dunollie office when he retired, Mr Todd began work at the Wallsend Mine in 1930, having been employed by a mercantile firm in Christchurch previously.

Wallsend was owned by the Brunner Collieries when he joined, but was taken over by State Coal in 1943, and a year later Mr Todd was transferred to the Dunollie office.

He became shipping manager in Greymouth in 1965, and continued as shipping clerk when he returned to Dunoillie four years ago on promotion to senior clerk.

In the 1930s Mr Todd played rugby and tennis for Cobden and was secretary and treasurer of both clubs for a while.

— BULLER —

Correspondent: BILL MILLER

In the last two reports I have been able to talk about our wonderful weather, but this time, over the last three weeks, the weather has been terrible; rain, rain, and more rain. In fact the weather has lived up to what most people in New Zealand think is typical Coast weather.

21st Birthday: Dennis Robertson of Waimangaroa celebrated his 21st on 15 June.

Weddings: Barry Lightbown and Liz Carrington.

Births: Alan and Jill Ireland, a son.
Dennis and Claire Kerr, a daughter.

Deaths: Once again it is with regret that I have to record the passing of some of our oldest and most respected members of our community.

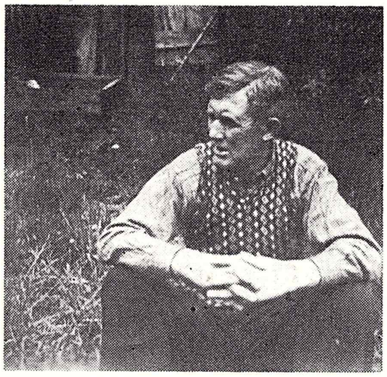
Miss Janet McKeckie of Granity.
Mrs Steele of Hector, late of Stockton.
Mrs Saunders of Westport, late of Denniston.
Bert Parker of Waimangaroa, late of Burnetts' Face.
Jim McBean of Ngakawau, late of Stockton.
Mrs Beveridge (senior) of Waimangaroa
Mr H. M. Kelly of Granity.
Harry Closs of Runanga, late of Millerton.
Wally Fleming of Millerton, late of Stockton.
Mrs Joan Hill of Granity.
Mrs Stuart of Hector.

Mr James McBean, a mining and rugby identity, died at Westport recently, aged 82. He served in two world wars, being in the N.Z. Medical Corps in the Middle East in the second conflict. He was born at Blacks Point, Reefton, but spent most of his life at Stockton and Ngakawau.

Jim took a great interest in Rugby Union especially the lower grades and generously helped to equip Ngakawau boys' teams. He was a foundation member of the Buller Junior Advisory Board and a cup for one of its competitions carries his name.

Jim lived at Stockton for about 40 years. He was closely associated with the Stockton Rugby team during its existence and proved himself an excellent administrator and coach.

Bert Parker, an old Burnett's Face identity, died recently.



The late Bert Parker, an old Burnett's Face identity.

Bert came to the Face in 1911 from the old country and lived there until the late 1950s when the people moved away to live down on the flat at Waimangaroa or Westport.

In 1958 when they decided to hold a reunion at Burnett's Face, Bert was the secretary and made a very successful job of it.

Bert in his young days was a very keen soccer player and a good athlete and later served on many committees.

Henry Michael Kelly, a mining and rugby identity of the Buller died in July

Born at Granity 79 years ago he was educated at the Mokihinui (Summerlea) School. From school Mr Kelly went to work in most Buller mines including Millerton where he gained his underviewer's ticket. At the time he retired he was a miner at Stockton.

In his younger days Mr Kelly took a keen interest in rugby, playing for Rovers (Granity) and Ngakawau, eventually becoming a Buller representative with the McLean brothers and Alby Colvin. He was also a very good billiards player.

Dennis Robertson of Waimangaroa celebrating his birthday with his family. In the group are Dennis' mother, father, brother and sister and grandmother.

DISTRICT NEWS

(Continued from page 50)

Bob Calvert of Hector retired on June 14 after working at Stockton as electrician for 33 years.

Office News — Gary Mundy has started in the Westport office. By the time this gets into print Val Tippen our typist will be married to David Collins of Waimangaroa, our best wishes to them.

The mine managers are on the move following a few retirements. It began with Ted Kerry of Stockton retiring and Charlie Cotton from Reefton moving to Stockton. Wally Cairns of Strongman moved to Reefton and Fred McDonald of Granity went to Strongman as assistant manager.

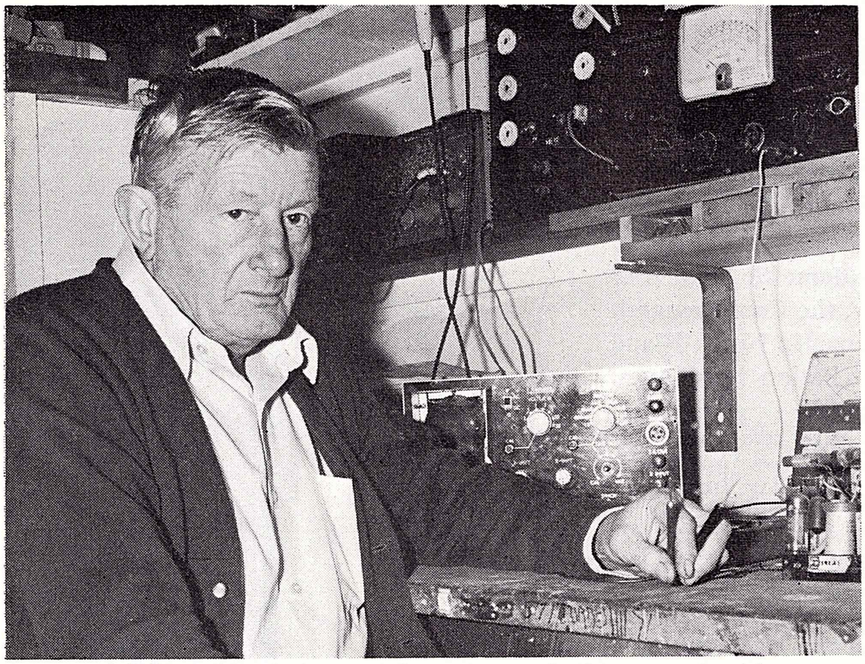
Now the second move: H. Bell, Denniston, goes to Strongman; Wally Cairns, Reefton, comes to Denniston; Fred McDonald, Strongman, goes to Reefton; Bill Brazil, Huntly, goes to Strongman as assistant — simple isn't it?

A game of draughts is easy after that!

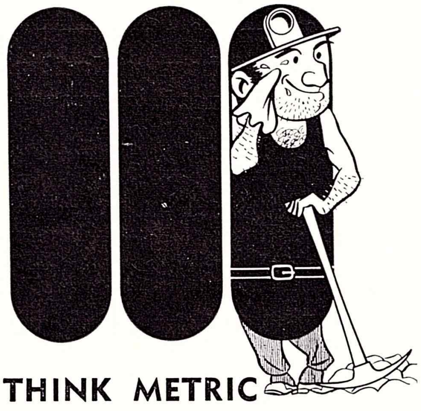
Coal Town

The architects have been here to Coal Town for further work on the Westport museum being created to commemorate coal mining in the Buller.

☆ ☆ ☆



Bob Calvert, who retired in June after 33 years at Stockton as an electrician.



USE COAL and SAVE OVERSEAS FUNDS!

For INDUSTRIAL
and DOMESTIC COALS
CONSULT

THOMAS BROWN LIMITED

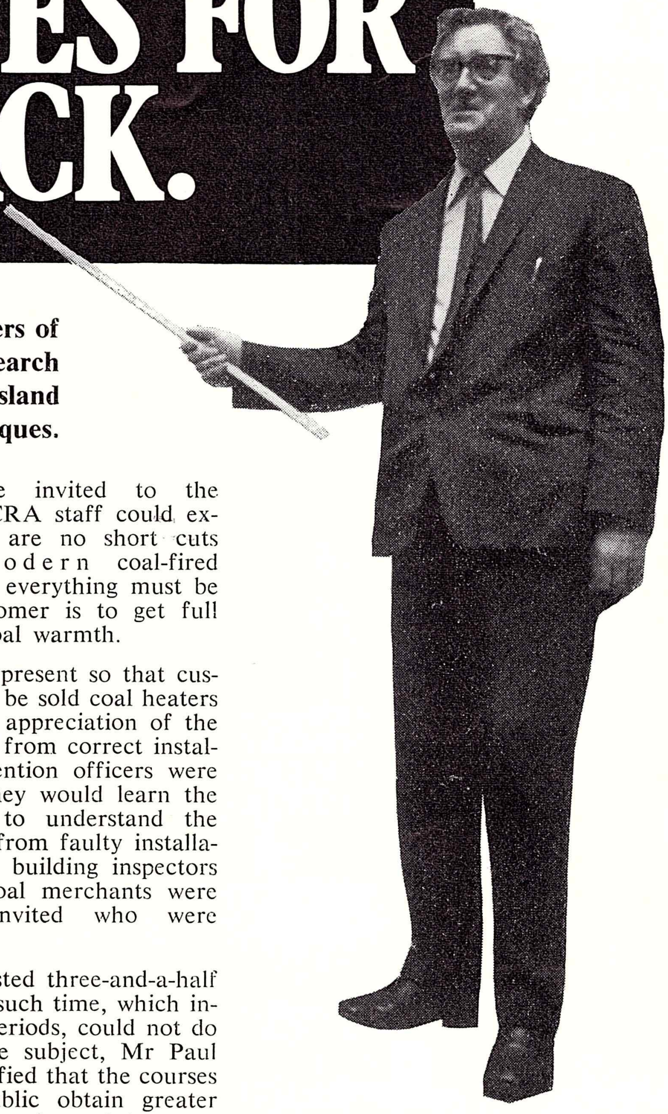
WHOLESALE COAL DISTRIBUTORS

WELLINGTON
P.O. Box 1750
Telephone 48-610
Telegrams "Abermain"

CHRISTCHURCH
P.O. Box 178
Telephone 68-386
Telegrams "Almanac"

CRA CARES FOR YOUR STACK.

Because the coal industry offers domestic heaters of higher efficiency for coal users today, the Coal Research Association has been conducting courses in North Island centres on the need for proper installation techniques.



"If I'd known what the course was going to be like, I'd have had my whole staff along as it would've benefited them all,' remarks by a master plumber.

Held during April and May, the 11 courses were attended by fire prevention officers, building inspectors, fire board employees, appliance salesmen, installers, architectural staff, coal merchants and others.

Mr K. Paul, fuel technologist, who conducted these courses, told "Coal" that problems caused by poor types of chimney and wrongly installed heaters are causing some heaters to perform badly.

"The higher efficiency of the modern heaters means that the products of combustion — the gases — are leaving the heater much colder," he said. "To have enough draught and to stop the gases condensing in the chimneys the gases must be kept as warm as possible during their passing into the atmosphere.

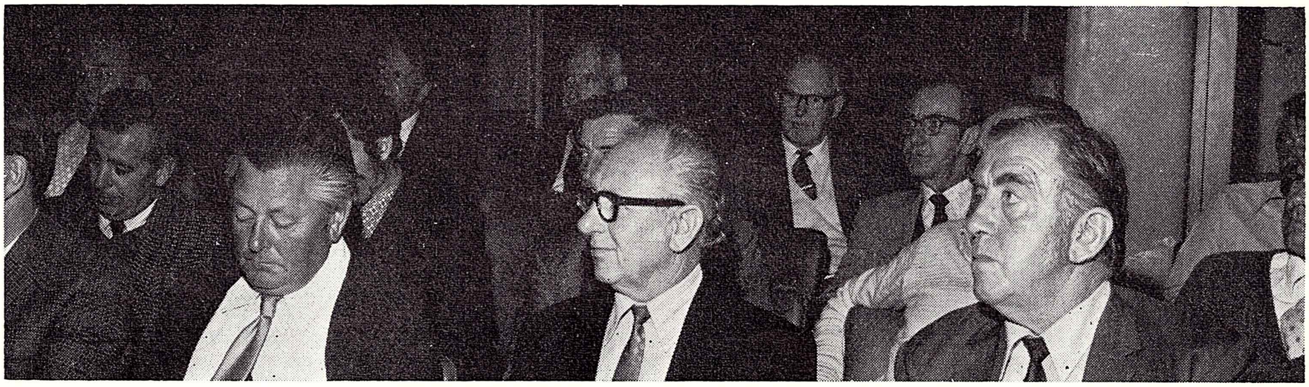
"Any air-leaks into the chimney, caused through its being badly built, or an imperfectly-installed heater together with a poorly-insulated chimney can have a big cooling effect and upset the proper working and control of the heater."

Installers were invited to the courses so that CRA staff could explain that there are no short cuts in installing modern coal-fired heaters, and that everything must be right if the customer is to get full value from his coal warmth.

Salesmen were present so that customers would not be sold coal heaters without a proper appreciation of the results that come from correct installation. Fire prevention officers were invited so that they would learn the right way, and to understand the problems arising from faulty installation, as were the building inspectors who attended. Coal merchants were among those invited who were present.

Each course lasted three-and-a-half hours, and while such time, which included question periods, could not do full justice to the subject, Mr Paul is reasonably satisfied that the courses will help the public obtain greater benefit from domestic coal heat.

Similar courses have been scheduled for the South Island.



Fire prevention officers, building inspectors, fire board employees, appliance salesmen, and coal merchants attended. "The best coverage we've seen or read," said an installer.

COMPLETE.

TO "SYSTEMS IN PACKAGING"
MULTIWALL PAPER BAG DIVISION,
N.Z. FOREST PRODUCTS LIMITED.,
PRIVATE BAG, AUCKLAND.

Please send me a copy of "Multiwall Systems in Packaging".

Name.. ... .

Company/Address..

....

....

TO READ ABOUT THE COMPLETELY NEW APPROACH TO PACKAGING

MULTIWALL SYSTEMS IN PACKAGING

A new service to industry from N.Z. Forest Products Limited.

Essential reading — "Multiwall Systems in Packaging". It tells you everything you ought to know about packaging with paper bags — new methods, new machinery, and the new set-up within the Multiwall Paper Bag Division of N.Z. Forest Products Limited that ensures every aspect of a packaging operation is approached scientifically . . . even down to a new packaging systems Test Centre.

Even if you don't think paper bags have a place in your packaging operations, you should read the book.

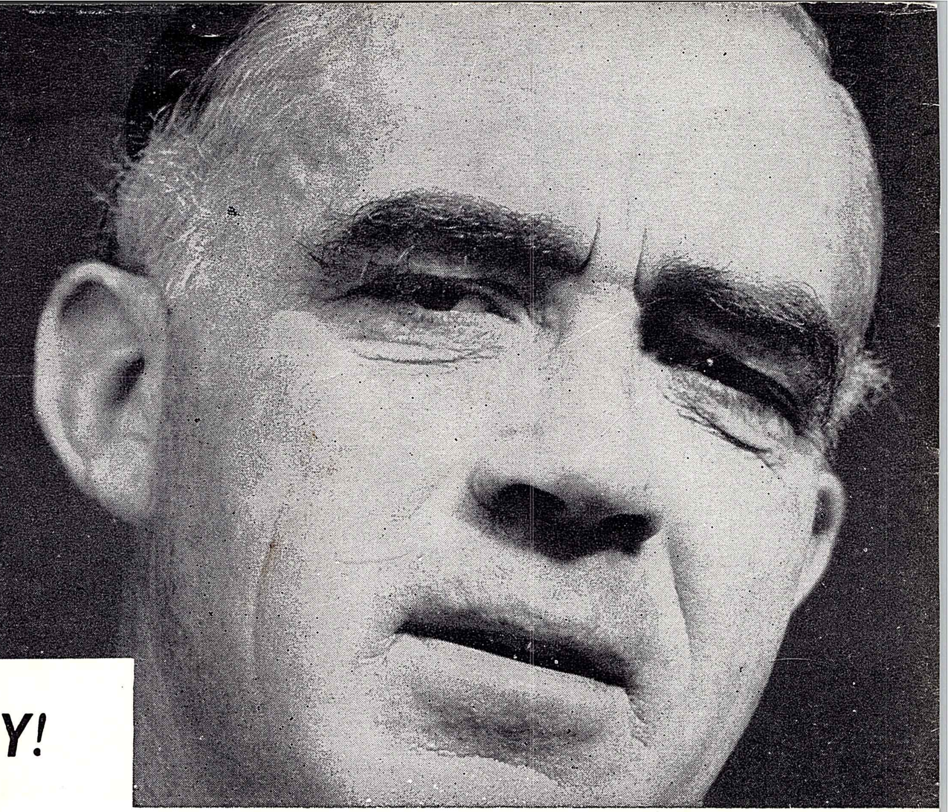
You never know . . . until you know.

MULTIWALL

paper bags

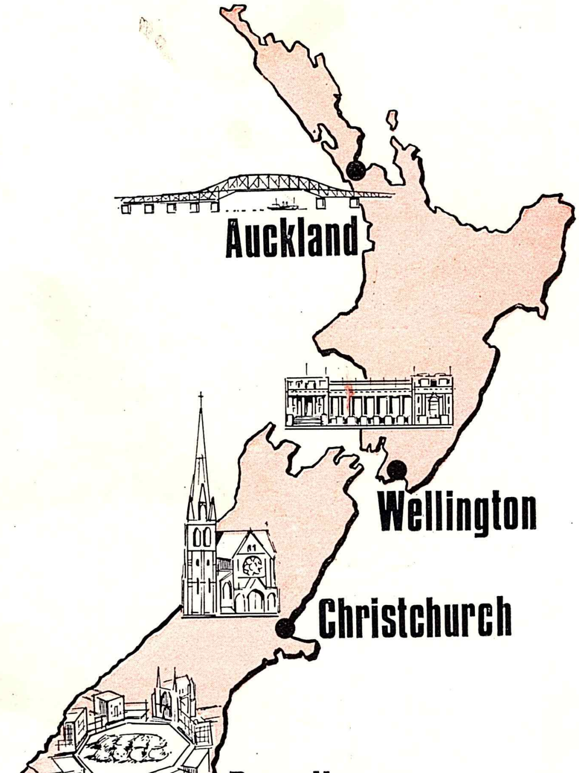
N.Z. FOREST
PRODUCTS LTD
PRIVATE BAG. AUCKLAND

fuel problems?



PHONE US TODAY!

TODAY COAL IS MODERN, CLEAN, AND WITH INSTRUMENTED INSTALLATIONS GIVES MAXIMUM EFFICIENCY AND ECONOMY



The fully qualified Fuel Technologists of the coal industry in New Zealand are readily available to Architects and Consulting Engineers planning for new or additional boiler plant. Their services are free and they will travel when necessary to any part of New Zealand for on-the-spot inspections. When you wish to obtain complete and up-to-the-minute information on the latest technological advances in coal burning, firing and storage, simply phone or write to your nearest coal industry Fuel Technologist.

AUCKLAND: P.O. Box 6593, Ph. 371-258 or P.O. Box 1701, Ph. 30-884; **HAMILTON:** P.O. Box 5132, Ph. 79-925; **PALMERSTON NORTH:** P.O. Box 1441, Ph. 83-282; **WELLINGTON:** P.O. Box 3041, Ph. 699-199; **CHRISTCHURCH:** P.O. Box 2274, Ph. 60-883 or P.O. Box 1303; **DUNEDIN:** P.O. Box 1151, Ph. 79-664; **INVERCARGILL:** C/- Coal Centre, 108 Dee St., Ph. 4650.